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LONDON, SATURDAY, SEPTEMBER 10, 1853.

REVIEWS.

A History of Roman Classical Literature.
By R. W. Browne, M.A., Professor of Classical Literature in King's College, London.
Bentley.

It is difficult to write the history of literature in a manner at once concise and satisfactory. If the writer deals only with the *summa fascia rerum*, he conveys no useful information to the ignorant; and those who are versed with the subject prefer the knowledge derived from the fountain head. Accordingly we find that Tiraboschi and Ginguené employ many volumes on the literature of Italy; three large volumes are expended by Ticknor on that of Spain; while the 'History of Grecian Literature,' by Colonel Mure, is brought down only to a comparatively early period by the large portion of his work already published. It is now two years since we noticed ('Lit. Gaz.', 1851, p. 717) the work of Dr. Browne, on the 'Literature of Greece,' and we then ventured to express a hope that his book on Roman literature would be better executed than its kindred work. The present volume bears marks of more mature thought and careful study. It is open to some of the same criticisms we then offered, but on the whole it presents an instructive and able sketch of the classic literature of Rome.

In the first chapter, there are some striking remarks on the vitality and individuality of the Greek language as contrasted with the Latin:—

"The Latin language, notwithstanding its nervous energy and constitutional vigour, has, by no means, exhibited the permanency and vitality of the Greek. The Greek language, reckoning from the earliest works extant to the present day, boasts of an existence measured by nearly one-half the duration of the human race, and yet how gradual were the changes during the classical periods, and how small, when compared with those of other European languages, the sum and result of them all! Setting aside the differences due to race and physical organization, there are no abrupt chasms, no broad lines of demarcation, between one literary period and another. The transition is gentle, slow, and gradual. The successive steps can be traced and followed out. The literary style of one period melts and is absorbed into that of the following one, just like the successive tints and colours of the prism. The Greek of the Homeric poems is not so different from that of Herodotus and Thucydides, or the tragedians or the orators, or even the authors of the later debased ages, but that the same scholar who understands the one can analyse the rest. Though separated by so many ages, the contemporaries of Demosthenes could appreciate the beauties of Homer; and the Byzantines and early Christian fathers wrote and spoke the language of the ancient Greek philosophers. * * *

"It is scarcely correct to term Greek a dead language. It has degenerated, but has never perished or disappeared. Its harmonious modulations are forgotten, and its delicate pronunciation is no longer heard, but Greek is still spoken at Athens. The language, of course, exhibits those features which constitute the principal difference between ancient and modern languages; prepositions and particles have supplanted affixes and inflexions, auxiliary verbs supply the gaps caused by the crumbling away of the old conjugations, and literal translations of modern modes of speech give an air of incongruity and barbarism; but still the language is upon the whole wonderfully preserved. A well-educated modern Greek would find less difficulty in understanding the writings of Xenophon than an Englishman would experience in reading Chaucer, or perhaps Spenser."

Compared with other languages, the Greek has evinced not only vitality, but individuality likewise. Its stream was but little tinged or polluted by the soil through which it passed. Latin seems to have a strong disposition to change: it readily became polished, and as readily barbarized. Latin has interpenetrated or become the nucleus of every language of civilized Europe; but the relation which it bears to them is totally unlike that which ancient Greek bears to modern. "The best Latin scholar," Dr. Browne remarks, "would not understand Dante or Tasso, nor would a knowledge of Italian enable one to read Horace and Virgil."

Professor Browne traces with minuteness the ancient races and languages of Italy; but however interesting his researches may be, we can hardly impart the same interest by remarks or quotations, and must therefore refer those who are curious on such subjects to the work itself.

He reckons three periods of Roman classical literature, the *first* consisting of 160 years, extending from the time when Livius Andronicus flourished to the first appearance of Cicero in public life—viz., from the year of Rome, u.c. 514 to u.c. 673:—

"The second period ends with the death of Augustus. It comprehends the age of which Cicero is the representative as the most accomplished orator, philosopher, and prose writer of his times, as well as that of Augustus, which is commonly called the golden age of Latin poetry.

"The third and last period of Roman classical literature terminates with the death of Hadrian. Notwithstanding the numerous excellences which will be seen to distinguish the literature of this period, its decline had evidently commenced. It missed the patronage of Augustus and his refined court, and was chilled by the baneful influence of his tyrannical successors. As the age of Augustus has been distinguished by the epithet 'golden,' so the succeeding period has been, on account of its comparative inferiority, designated as 'the silver age.'

There are some ingenious disquisitions on the origin and progress of Latin poetry. In other nations, poetry has been the first spontaneous composition. With the Romans, the first literary effort was history; then came the Fescennine verses, the Atellan fables, satire, and the drama. Livius Andronicus was the earliest dramatic writer at Rome, and Naevius the first poet who really deserves the name of Roman. He had a fearless attachment to liberty, a stern opposition to all who dared invade the rights of his fellow citizens, unsparing in his censure of immorality, and in his admiration of heroic self-devotion. Of him it is that Horace speaks—

"Naevius in manibus non est at mentibus haeret,
Pene recens, adeo sanctum est vetus omne poema."

Imitated by Pope—

"Who now reads Cowley?" &c.

And the reverse of this is strangely stated by Dr. Browne, when he says "Horace writes that in his day the poems of Naevius were in the hands and hearts of everybody." But the whole account of Naevius is uncommonly pleasing and interesting to every lover of genius and antiquity.

The next considerable writer is Ennius, of whom the account is also well worthy of attention. The copious subject of the Roman drama in the hands of Plautus, Terence, and his contemporaries, must be studied in Dr. Browne's work, who gives an enumeration of the principal comedies, and a description of the characters drawn by the poets. He very properly judges of the morality of the Roman

drama by the light which the heathens possessed; and contrasts it with the disgusting pollutions of Wycherley and other writers, who in a Christian country spread contamination and wickedness. It may be that the puerilities of school-days are soon obliterated by the real business of life, but we have on several occasions strongly expressed our disapproval of the representation of Terence's plays at Westminster and other public schools.

Tragedy never flourished among the Romans. Dr. Browne's disquisitions as to the reasons of this, are learned and ingenious. We select one paragraph:—

"Again, the Romans were a rough, turbulent people, full of physical rather than intellectual energy, loving antagonism, courting peril, setting no value on human life or suffering. Their very virtues were stern and severe. The unrelenting justice of a Brutus, representing as it did the victory of principle over feeling, was to them the height of virtue. They were ready to undergo the extreme of physical torture with Regulus, and to devote themselves to death like Cætius and the Decii. Hard and pitiless to themselves, they were, as might be expected, the same towards others. They were, in fact, strangers to both the passions, which it was the object of tragedy to excite and to purify, Pity and Terror. They were too stern to pity, too unimaginative to be moved by the tales of wonder and deeds of horror which affected the tender and marvel-loving imagination of the Greeks. Being an active, and not a sentimental people, they did not appreciate moral suffering and the struggles of a sensitive spirit. They were moved only by scenes of physical suffering and agony."

To Cicero, the prince of Roman literature, Dr. Browne is not unfavourable; yet we hardly think he does justice to that great man, to whom not only the scholars, but the orators and statesmen of all succeeding ages must for ever be indebted.

"His age was not an age of poetry; but he paved the way for poetry by investing the language with those graces which are indispensable to its perfection. He freed it from all coarseness and harshness, and accustomed the educated classes to use language, even in their every-day conversation, which never called up gross ideas, but was fit for pure and noble sentiments. Before his time, Latin was plain spoken, and therefore vigorous; but the penalty which was paid for this was, that it was sometimes gross and even indecent. The conversational language of the upper classes became in the days of Cicero in the highest degree refined: it admitted scarcely an offensive expression. The truth of this assertion is evident from those of his writings, which are of the most familiar character—from his graphic Dialogues, in which he describes the circumstances as naturally as if they really occurred; from his Letters to Atticus, in which he lays open the secret thoughts of his heart to his most intimate friend, his second self. Cicero purified the language morally as well as aesthetically. It was the licentious wantonness of the poets which degraded the pleasures of the imagination by pandering to the passions, at first in language delicately veiled, and then by open and disgusting sensuality.

"It is difficult for us, perhaps, to whom religion comes under the aspect of revelation separate from philosophy, and who consider the philosophical investigation of moral subjects as different from the religious views of morals, to form an adequate conception of the pure and almost holy nature of the conversations of Cicero and his distinguished contemporaries. To them philosophy was the contemplation of the nature and attributes of the Supreme Being. The metaphysical analysis of the internal nature of man was the study of immortality and the evidence for another life. Cato, for example, read the Phædo of Plato in his last moments in the same serious spirit in which the Christian would read the words of inspiration. The study of ethics was that of the sanctions with which God has sup-

[Sept. 10]

ported duty and enlightened the conscience. They were the highest subjects with which the mind of man could be conversant. For men to meet together, as was the habitual practice of Cicero and his friends, and pass their leisure hours in such discussions, was the same as if Christians were to make the great truths of the Gospel the subjects of social converse.

"Again, if we examine the character of their lighter conversations when they turned from philosophy to literature,—it was not mere gossip on the popular literature of the day—it was not even confined to works written in their native tongue—it embraced the whole field of the literature of a foreign nation. They talked of poets, orators, philosophers, and historians, who were ancients to them as they are to us. They did not then think the subject of a foreign and ancient literature dull or pedantic. They did not consider it necessary that conversation should be trifling or frivolous in order to be entertaining.

"Nor was the influence which Cicero exercised on the literature of his day merely extensive, but it was permanent. The great men of whom he was the leader and guide caught his spirit. His influence survived until external political causes destroyed eloquence, and its place was supplied by a cold and formal rhetoric: it was felt almost until the language was corrupted by the admixture of barbarisms. It may be discerned in the soldier-like plainness of Cæsar, in the Herodotean narrative of Livy, and its sweetness without its diffuseness occasionally adorns the reflective pages of Tacitus."

We may be thought very hard to please if we are not content with a panegyric like this; but still we think our author has said too much about the vanity, the timidity, and the vacillation of Cicero, and made too little allowance for the imperfection of heathen motives to virtue, and for the difficult circumstances in which he was placed. Surrounded by most accomplished rivals and enemies, he failed of success in public life, only because he was not unscrupulous and faithless like them. In the three periods of his life, when he acted most from the counsels of his own virtuous and able mind, he displayed all the excellences of a wise and upright magistrate; the periods we mean are his consulship, his government of Cilicia, and his last glorious struggle for the republic after the death of Cæsar. The necessarily slight and rapid review of his works is generous and candid. Dr. Browne especially does justice to the superlative excellence of his letters; and he might have dilated much on the great powers displayed by Cicero's correspondents, whom he enumerates, many of whom write with as much elegance, philosophy, and knowledge of the world as himself. The eighth book, 'Ad Familiare,' is made up of the letters of Cælius, who gives Cicero all the news of Rome, while he was absent as governor of Cilicia; and along with the gossip of Rome and the contests in the courts of law, he tells him of the debates in the senate, about the quarrel of Cæsar and Pompey, in a style so graphic, that we might fancy ourselves reading a parliamentary debate in our own time, on some of the most stirring questions of the day.

We have expended so much of our space, that we must deny ourselves the pleasure of introducing to our readers many tempting subjects, and must refer them to the book itself. Passing over Lucilius and the satirists, old Cato the censor, the lawyers, the pre-Ciceronian orators, Virgil, Ovid, and a variety of other topics equally curious and interesting, and skilfully treated by our author, we give some extracts from his account of the personal character and literary works of Horace:—

"The life of Horace is especially instructive, as a mirror in which is reflected a faithful image of the manners of his day. He is the representative of Roman refined society as Virgil is of the national mind. He who understands Horace and his works can picture to himself the society in which he lived and moved. One cannot sympathize with Petrarch, when he says, 'Se ex nullo poeta Latino evasisse meliorum quam ex Horatio,' or exclaim with the devoted Maecenas,

*Ni te visceribus meis Horati
Plus jam diligo, tu tuum sodalem
Ninno videos strigisorem.*

but still it is scarcely possible not to feel an affection for him. Notwithstanding his selfish Epicureanism, he possessed those elements of character which constitute the popularity of men of the world. He was a gentleman in taste and sentiments. He would not have denied himself any gratification for the sake of others; but he would not willingly have caused any one a moment's uneasiness, nor was he ever ungrateful to those who were kind to him. He was a pleasant friend and a good-humoured associate, adroit in using the language of compliment, but not a flatterer, because he was candid and sincere. He changed his politics, but he had good cause for so doing. The circumstances of the times furnished ample justification. His morals were lax, but not worse than those of his contemporaries: all that can be said is, that he was not in advance of his age. His principles will not bear comparison with a high moral standard; but he had good qualities to compensate for his moral deficiencies. He looked at virtue and vice from a worldly, not a moral point of view. With him the former was prudence, the latter folly. Vice, therefore, provoked a sneer of derision, and not indignation at the sin or compassion for the sinner, and for the same reason he was incapable of entertaining a holy enthusiasm for virtue.

"Good-tempered as a man, he nevertheless showed that he belonged to the *genus irritable ruminum*. He was jealous of his poetical reputation. Not, indeed, towards his contemporaries, but towards the poets of former ages. He either could not or would not see any merit in old Roman poetry. His prejudice cannot be ascribed only to his enthusiasm for Greek literature, for he did not even appreciate the excellencies which the old school of poetry had in common with the Greeks. Party spirit had somewhat to do with it, for a feud on the subject divided the literary society of the day, and hence Horace took his side warmly and uncompromisingly."

After describing the characteristics of the satires of Horace, the following remarks are made on the subjects and style of the Epistles and the Odes:—

"Epistolary writing is especially a Roman accomplishment. The Romans thought their correspondents deserved that as much pains should be bestowed on that which was addressed to them as on that which was intended for the public eye; and, in addition to the careful polish of which Cicero set the example, Horace brought to the task the embellishment of poetry. In the Epistles, he lays aside the character of a moral teacher or censor. He treats his correspondent as an equal. He opens his heart unreservedly: he gives advice, but in a kind and gentle spirit, not with sneering severity. The satire is delivered *ex cathedra*; the epistle with the freedom with which he would converse with an intimate friend.

"The subjects of the first books are moral, those of the second critical. The *Ars Poetica* is but a poetical epistle addressed to the Pisos, who had been bitten by the prevailing mania for tragic poetry. The usual title claims a far greater extent of subject than the poet intended. It is not a treatise on poetry, but simply an outline of the history of the Greek drama, and the principles of criticism applicable to it. It harmonizes well with the literary subjects treated of in the second book of the Epistles, and might well be included in it. It is, indeed, longer and more elaborate: a synopsis of so extensive a subject required more careful treatment; but it is impossible to form a correct

estimate of the taste and judgment which it displays, unless it is considered as nothing more than an epistle.

"The versification of the Epistles is more smooth than that of the Satires, but only in proportion to the superior neatness of the style generally. In neither does the metrical harmony rise to the height of poetry, properly speaking. Doubtless this was the poet's deliberate intention. It cannot be supposed that he who could so successfully introduce all the beautiful Greek lyric metres, and in some cases improve the delicacy of their structure, was incapable of reproducing the rhythm of the Greek hexameter. He felt that in subjects belonging to the prosaic realities of life, and hitherto treated with the conversational facility of the iambic measure, some appearance of negligence and even roughness could alone render the stately hexameter appropriate, and therefore tolerable. But, admirable as the Satires are for their artistic and dramatic power, and the Epistles for their correct taste, lively wit, and critical elegance, it is in his imitable Odes that the genius of Horace as a poet is especially displayed. They have never been equalled in beauty of sentiment, gracefulness of language, and melody of versification. They comprehend every variety of subject suitable to the lyric muse. They rise without effort to the most elevated topics—the grandest subjects of history, the most gorgeous legends of mythology, the noblest aspirations of patriotism: they descend to the simplest joys and sorrows of every-day life. At one time they burn with indignation, at another they pour forth accents of the tenderest emotions. They present in turn every phase of the author's character: some remind us that he was a philosopher and a satirist; and although many are sensuous and self-indulgent, they are full of gentleness, kindness, and spirituality. Not only do they evince a complete mastery over the Greek metres, but also show that Horace was thoroughly imbued with the spirit of Greek poetry, and had profoundly studied Greek literature, especially the writings of Pindar and the lyric poets. Numerous are the instances in which he has imitated them, and introduced by a happy adaptation their ideas, epithets, and phrases, his imitations are not mere plagiarisms or purple patches—they are made so completely his own, and are invested with so much novelty and originality, that, when compared with the original, we receive additional gratification from discovering the resemblance. The sentiments which are paraphrased seem improved; the expressions which are translated seem so appropriate, and harmonize so exactly with the context, that a poet, whose memory was stored with them, would have been guilty of bad taste if he had substituted any other. Greek feelings, sentiments, and imagery, are so naturally amalgamated with Roman manners, that they seem to have undergone a transmigration, and to animate a Roman form."

Our last extract presents the concluding remarks on the spirit and style of Tacitus as a historian:—

"The object of Tacitus, therefore, was not, like that of the great philosophical historian of Greece, to describe the growth of political institutions, or the implacable animosities which raged between opposite political principles—the struggles for supremacy between a class and a whole people—but the influence which the establishment of tyranny on the ruins of liberty exercised for good or for evil in bringing out the character of the individual. Rome, the imperial city, was the all-engrossing subject of his predecessors; Romans were but subordinate and accessory. Tacitus delineated the lives and deaths of individuals, and showed the relation which they bore to the fortunes of their country.

"It would have been impossible to have satisfied a people whose taste had become more than ever rhetorical, without the introduction of orations. Those of Tacitus are perfect specimens of art; and probably, with the exception of Galba, far more true than those of other Roman historians. Still he made use of them, not only to embody traditional accounts of what had really been said on

each occasion, but to illustrate his own views of the character of the speaker, and to convey his own political opinions.

"Full of sagacious observation and descriptive power, Tacitus engages the most serious attention of the reader by the gravity of his condensed and comprehensive style, as he does by the wisdom and dignity of his reflections. The purity and gravity of his sentiments remind the reader even of Christian authors.

"Living amidst the influences of a corrupt age he was uncontaminated; and by his virtue and integrity, his chastened political liberality, commands our admiration as a man, whilst his love of truth is reflected in his character as an historian. Although he imitated, as well as approved, the cautious policy of his father-in-law, he was not destitute of moral firmness.

"It derogates nothing from his courage that he was silent during the perilous times in which great part of his life was passed, and spoke with boldness only when the happy reign of Nerva had commenced, and the broken spirit of the nation had revived. Like the rest of his fellow-countrymen he exhibited a remarkable example of patient endurance, when the imperial jealousy made even the praise of those who were obnoxious to the tyrant treason; when it was considered a capital crime for Arulenus Rusticus to praise Pætus Thræsa, and Herennius Senecio to eulogise Priscus Helvidius.

"In those fearful times he himself says, that 'as old Rome had witnessed the greatest glories of liberty, so her descendants had been cast down to the lowest depths of slavery; and would have been deprived of the use of memory, as well as of language, if it were equally in man's power to forget as to be silent.' In such times prudence was a duty, and daring courage would have been unavailing rashness. In his praise of Agricola, and his blame of Pætus, he enunciates the principles which regulated his own conduct—that to endanger yourself without the slightest prospect of benefiting your country is mere ostentatious ambition. 'Sciens,' he writes, 'quibus moris illicita mirari, posse etiam sub malis principibus magnos viros esse; obsequiumque ac modestiam, si industria ac vigor adiut, eo laudis excedere, quo plerique per abrupta, sed in nullum reipublice usum ambitions morte inclinaruerint.' Again, 'Thræsa Pætus sibi causam periculi fecit, ceteris libertatis initium non praebuit.'

"In the style of Tacitus the form is always subordinate to the matter: the ideas maintain their due supremacy over the language in which they are conveyed. There is none of that striving after epigrammatic terseness which savours of affectation. His brevity, like that which characterises the style of Thucydides, is the necessary condensation of a writer whose thoughts flow more quickly than his pen can express them. Hence his sentences are suggestive of far more than they express: they are enigmatical hints of deep and hidden meaning, which keep the mind active and the attention alive, and delight the reader with the pleasures of discovery and the consciousness of difficulties overcome. Nor is this natural and unintentional brevity unsuitable to the cautious reserve with which all were tutored to speak and think of political subjects in perilous times. It is extraordinary how often a similarity between his mind and that of Thucydides inadvertently discovers itself—not only in his mode of thinking, but also in his language, even in his grammatical constructions, especially in his frequent substitution of attraction for government, in instances of condensed construction, and in the connexion of clauses grammatically different, although they are metaphysically the same.

"Nor is his brevity dry or harsh—it is enlivened by copiousness, variety, and poetry. He scarcely ever repeats the same idea in the same form. No author is richer in synonymous words, or arranges with more varied skill the position of words in a sentence. As for poetic genius, his language is highly figurative; no prose writer deals more largely in prosopopœia: his descriptions of scenery

and incidents are eminently picturesque; his characters dramatic; the expression of his own sentiments and feelings as subjective as lyric poetry."

There are many blunders, typographical and others, which must be corrected in a new edition. Many of the references are inexact and puzzling. For instance, if the reference to Cicero's Brutus, at page 60, be correctly stated, viz., 19, then the references at pages 53, 55, should not be 71 and 72, but simply 18. Again, at page 188, he quotes from Cicero, *Orat. III. 56*. Now the 'Orator' contains but one book, and it should have been 'De Oratore,' III. 56. At page 452, he says that Gallio is mentioned in the Acts of the Apostles, viii. 12: it should be xviii. 12. At page 348, we find "Two days pass away, and after Caesar and Cicero had spoken;" it should be Caesar and Cato. At page 257, the praises of Great Britain, by Thomson, adduced as an instance of Virgilian taste, are not in "Autumn," but in "Summer," (line 1455.)—

"Rich is thy soil, and merciful thy clime;
Thy streams unfailing in the summer's drought:
Unmatched the guardian oaks."

The book abounds in similar errors and inaccuracies.

Hebrew Politics in the Times of Sargon and Sennacherib. By Edward Strachey. Longman and Co.

MR. STRACHEY'S book professes to be "an inquiry into the historical meaning and purpose of the prophecies of Isaiah, with their bearings on the social and political life of England." The application of old Hebrew politics in the times of Sargon and Sennacherib to the affairs of modern English life may appear at first sight a far-fetched and unpromising subject, but the happily-chosen motto from Milton's 'Paradise Regained' at once exhibits the design and spirit of the work:—

"Their orators thou then extoll'st, as those
The top of eloquence; statists indeed,
And lovers of their country, as may seem;
But herein to our Prophets far beneath,
As men divinely taught, and better teaching
The solid rules of civil government.
In their majestic, unaffected style,
Than all the oratory of Greece and Rome.
In them is plainest taught, and easiest learnt,
What makes a nation happy, and keeps it so,
What ruins kingdoms, and lays cities flat.
These only with our law best form a king."

The manner in which Mr. Strachey applies his historic parallels, and compares ancient with modern institutions, will be seen in the following passage on the laws of entail. The remarks are suggested by the denunciation of the prophet against those who "join house to house and field to field." Besides the personal sin of selfish covetousness, there was the national wrong of destroying the middle-class landowners, and putting the country into the possession of a powerful aristocracy:—

"It is hard to say how a nation, which is to preserve its own orderly existence, can remain without some laws or institutions for encouraging, or at least permitting, the disposition of its members to found families, to be maintained by hereditary possessions in land. Yet, if this disposition be not kept within bounds, those who are influenced by it will 'join house to house, and field to field, till there be no place,' till the race of small landholders, yeomen, and partly independent tenants, is swallowed up by a few rich despots. To prevent this evil among the Jews, Moses directed as equal a division of the land as possible in the first instance, among the whole 600,000 families who originally formed the nation; and provided against the permanent alienation of any

estate, by giving a right of repurchase to the seller and his relations, and of repossession without purchase at the Jubilee. The story of Naboth illustrates the effect of these laws in forming an order of sturdy independent yeomen; but it must also be taken as an instance of the habitual breach of the same laws by the rich and powerful, as they in like manner disobeyed that respecting the liberation of slaves at the Jubilee. In England, where the Norman Conquest had accumulated all the land in the hands of a few nobles, the like result of checking this accumulation has been effected by laws, in their form exactly opposite to those of Moses;—by the permission to cut off old entails, and the prohibition to make new ones, except for one generation; and by allowing land to be bought and sold like other commodities. The Hebrew constitution provided by law for the preservation of the old families; while our constitution, at the same time that it gives them the means of sustaining themselves with even the most ordinary internal virtue and energy, permits them, if they become effete and worthless, to give way to new and more vigorous houses, which have raised themselves out of the ranks below; and thus new blood is continually infused into the old organization of the State. I do not indeed say, nor think, that our existing means are as effectual as they might be for the latter purpose; but the law has very much less, and the private arrangements of fathers and sons very much more, to do with the alienation or retention of family estates than is supposed by most of the common arguments for or against 'laws of primogeniture' in England. Some remedies, too, are as bad as the disease; and we must be cautious how we try to direct English free-will by continental restrictions. But how imperfectly we realise the ideal of the constitution; how deeply liable we are to the denunciations of the Hebrew prophet; and in what degree this national sin, with its practical bad consequences, might be checked by legislation, as well as preached against by the Church; these points must be left for the reader's consideration. I would also direct his attention to the progress of the world as shown in the comparison of these opposite means, in ancient Israel and modern England, for effecting the same end, and for providing that element of the political constitution of each which the Jews marked by the name of 'tribe,' and we usually call 'feudal,' or 'aristocratic,' but which is properly the element of *family* life as distinguished from the several other elements—industrious, intellectual, moral, religious, which have all the appropriate political forms of expression, and which together unite in one constitution of body-politic."

On the subject of the invasions of Sennacherib the King of Assyria, and the opposition made by Isaiah to an alliance of Israel with Egypt, the principles of the policy advised by the prophet-statesman are thus described:—

"We see from Isaiah's subsequent denunciations of the Egyptian alliance, that the ground of them was, that the people of Israel should trust in their own Lord and King for deliverance, and in no other power whatever. Though he encouraged Hezekiah to the boldest defiance and most resolute resistance of Sennacherib at the last, there is no indication that he advised or approved his first refusal of the tribute which Ahaz had consented to pay: on the contrary, the whole tenor of the prophet's discourses is, that the subjection to the Assyrian yoke was a needful though harsh discipline for the nation; that the Lord would himself effect their deliverance in due time; and that they were to wait patiently till then. This simple and entire trust in the Lord, as the Head of the nation, and of each member of it in particular,—as their actual Ruler, and ever-present Friend, watching over them every moment with the care of a Husband and a Father,—this is the master-light of all Isaiah's philosophy, moral and political, and the one lesson which in a hundred forms he is continually teaching the people. Whether he was right, whether this is indeed the one thing 'which makes

a nation happy and keeps it so,' the reader must decide for himself: I will only point out that to us, judging after the event, the good sense and sound practical statesmanship of Isaiah's policy, and the folly of that of Sheba and the public opinion which supported his government, are alike obvious. It was no doubt an admirable policy for the interests of Egypt, that Palestine, with its mountain-defiles and strong fortresses, should consent to be her northern military frontier, and that Hebrew blood and treasure should be expended in maintaining the fortified cities of Samaria and Jerusalem, Lachish and Libnah, against the advance of Assyria. If the invaders overcame these obstacles at last, Egypt would meanwhile have gained some years of security at no cost to herself, and would be then better able to meet a half-exhausted foe; while, if the resistance of the Hebrews was successful, they themselves would have been so weakened as to be at the mercy of the ally they had been serving too well. In no case could Israel be other than a sufferer: if the contest of the great belligerents could have been fought out in some other country than Palestine, there might have been a little more plausibility in Sheba's scheme for a balance of power, though even then the day of retribution might have been expected at last, from friend, if not from foe: but when Palestine itself must, in such a case, be 'the cockpit' of Asia and Africa, the one thing which sound policy indicated was, that it should, if possible, remain neutral."

The sound policy of Israel remaining neutral in the conflicts between Assyria and Egypt is thus demonstrated, and the connexion between the national prosperity and obedience to Divine warnings delivered by the prophet, is beautifully illustrated. In a footnote is given a passage from Niebuhr's Life, in which the historian made use of Hebrew politics for giving practical advice in modern times. Niebuhr was not so conspicuous for patriotism as to make the special reference of much value, but the passage is interesting as showing how the historical records of the Bible may be applied to passing events either for counsel or warning:—

"As a modern writer has charged Jeremiah with treachery worthy of death, in preaching submission to Nebuchadnezzar, it is worth while to see how his conduct looked to one who had opportunity, and was competent, to interpret it by the political experience of his own day. Niebuhr, writing Jan. 10, 1809, of the abortive desires of Stein and others to throw off the yoke of Napoleon, says, 'I told you, as I told every one, how indignant I felt at the senseless prating of those who talked of desperate resolves as of a tragedy. Ever since the peace of Tilsit, my maxims have been those which Phocion preached to the Athenians of his age; and nowhere have I seen, among the declaimers on the other side, a Demosthenes, or even a Hyperides, but many a Dives. To bear our fate with dignity and wisdom, that the yoke might be lightened, was my doctrine, and I supported it with the advice of the prophet Jeremiah, who spoke and acted very wisely, living as he did under King Zedekiah, in the times of Nebuchadnezzar, though he would have given different counsel had he lived under Judas Maccabeus, in the times of Antiochus Epiphanes: 'Seek the peace of the city whither I have caused you to be carried away captives; for in the peace thereof shall ye have peace.'

It is a difficult and dangerous thing to mix up worldly and religious grounds of political action, and of this there are melancholy instances in modern history. Man is too apt to interpret Providence according to his own desires or interests. Divine purposes are carried out through human plans, but care must be taken not to make future good a pretext or excuse for present evil. Thus, the invasion and subjection of a barbarous people often pave the way for civilization and Christianity; but this result of historical ex-

perience is no plea for aggression or extenuation of wrong. The remarks of Mr. Strachey on the policy of the Hebrews with relation to the surrounding people of Canaan are sound and sagacious, and entirely meet the objections which some recent sceptical writers, such as Mr. Newman, have urged against the Divine authority of the scriptures:—

"Here, as always, the Bible reveals to us the universal law of political society, in the special instance of the Hebrew nation. The claim of Abraham's descendants to the land of Canaan, because God had given it to him, is a claim essentially of the same kind as that of the Dorians to Sparta, or of the Normans to England. There was no more technical force in the first than in the others: they no less than it were divinely inspired and sanctioned: but the Hebrew grant and conquest, taken in connexion with the whole previous and subsequent history of which they are a part, reveal God as the righteous Author and Upholder of political society, anticipating, preparing, and directing all the successive arrangements by which the end is to be effected; and thus they throw a direct light (for him who cares to have it) on all other national conquests and settlements, which these only reflect back on it. The Jews were, no doubt, as bloody and rapacious in their manner of effecting their settlement in Palestine as many other nations in like circumstances; but this does not make it clearer, that we have to distinguish between the thing that had to be done because it was right and good to do it, and the imperfect human instruments who did it in a very imperfect manner. As soon as we once get this distinction between the eternal, wise, and good law of national settlements, and the partial and defective realisations of it in time by men, we recover the old faith in the Bible as the revelation of God's mind."

Among other illustrations of this part of the subject reference is made to the British Empire in India:—

"Every real student of the history of the establishment of the British power in India knows, that our merchants there were originally actuated by no ambitious designs, but by singularly limited desires for mere peaceful traffic; and that they allowed the conquests of Clive in Bengal, as well as the earlier wars at Madras, with the greatest reluctance, and purely in order to defend themselves in the midst of the general anarchy into which the Mogul empire was dissolved: and yet religious writers of no small knowledge of history, have actually preferred to ignore the real current of events, and to assert that our possession of India cannot be justified on Christian grounds, and is no place for a Christian governor, like Sir John Shore; but that we have of course a right, on worldly grounds, to hold and govern what a worldly disregard of the principles of the Bible alone enabled us to get. Let us take the facts of the conquest as they really occurred; and let us say, that though the English traders had as little belief that God was calling on them to 'go up and possess the land,' as they had ambitious inclination to do so; yet that because it was God's will to re-organise India under Christian laws and institutions, after those of Menu and of the Koran had done their work, He, by His Providence, made the first steps of the conquest unavoidable, and so led us on to the subsequent position, in which an ambitious Hastings or Wellesley, no less than a justice-loving Cornwallis, or a pious and philanthropic Shore, were made to do their successive tasks:—and then we shall falsify neither the Bible nor history."

On the subject of the Assyrian kings and their wars many learned details are given by Mr. Strachey, who shows himself familiar with the latest researches of Hincks, Layard, Rawlinson, and other authorities. For the present much must remain conjectural in the history of Assyria, those parts being most clearly known which are connected with the records of the Hebrew nations, the authenti-

city of which is confirmed by every successive discovery. From the labours of the newly-formed Assyrian Society we may expect ample materials to be supplied for filling up the gaps and explaining the difficulties of Assyrian history. Mr. Strachey makes use of the monumental remains from the palaces of Sargon and Sennacherib to confirm the truth of the Hebrew records, nor is his critical acumen less observable in applying literary illustrations to throw light on passages of Isaiah which have appeared doubtful or obscure. In all this good service is done to the cause of religious truth as well as to historical knowledge. But at the same time there are some points on which Mr. Strachey's views must be received with caution. In his delineation of the prophets in their political and historical character he leaves too much out of view their special office of seers and predictors of future events. Connected with this omission, the author's views of inspiration are not always sound, or at least are loosely expressed. Thus, when it is said that "by the same Spirit which inspired Isaiah, Luther spoke in the Diet of Worms, and Cromwell acted on the field of Dunbar;" this is true as regards the source of the inspiration, but the form of it is very different as displayed in natural sagacity and genius, and in that supernatural prescience by which the prophets saw and recorded events beyond the possible limits of human knowledge and power. But it is only occasionally that this laxity of language or sentiment occurs. In general the author's views of the special inspiration, which belongs to revealed as distinguished from natural truth, are more akin to those held by Bacon, Newton, and Milton, than by our modern rationalists. To the Biblical scholar, as well as to the student of history and of politics, Mr. Strachey's volume is full of interesting and important matter.

Christie Johnstone. A Novel. By Charles Reade, Esq., Author of 'Peg Woffington.' Bentley.

THIS is a dramatic novelette, in one moderate-sized volume, full of moving interest, and paved with excellent intentions, but the story is a very impossible one, and the characters are not sufficiently consistent in their development to represent truth as it appears in nature. A young lord, Viscount Ipsden, finding himself unhappy, used up, living for nothing but amusement, is made to believe that he is ill, though blessed with a 'constitution equine,' and sends for an eccentric physician:—

"Dr. Aberford, my lord."

"This announcement, made by Mr. Saunders, checked his lordship's reverie.

"Insults everybody, does he not, Saunders?"

"Yes, my Lord," said Saunders, monotonously.

"Perhaps he will me; that might amuse me," said the other.

"A moment later the Doctor bowed into the apartment, tugging at his gloves, as he ran.

"The contrast between him and our poor rich friend is almost beyond human language.

"Here lay on a sofa, Ipsden, one of the most distinguished young gentlemen in Europe; a creature incapable, by nature, of a rugged tone or a coarse gesture: a being without the slightest apparent pretension, but refined beyond the wildest dream of dandies. To him, enter Aberford, panting and shouting. He was one of those globes of human quicksilver, one sees now and then, for two seconds; they are in fact, two globules; their head is one, invariably bald, round, and glittering;

the body is another in activity and shape, totus teres, atque rotundus; and in fifty years they live five centuries. Horum Rex Aberford—of these our Doctor was the chief. He had hardly torn off one glove, and rolled as far as the third finger from the door on his lordship's carpet, before he shouted,

"This is my patient, lolling in pursuit of health.—Your hand," added he. "For he was at the sofa long before his lordship could glide off it.

"Tongue.—Pulse is good.—Breathe in my face."

"Breathe in your face, sir! how can I do that?" (with an air of mild doubt.)

"By first inhaling, and then exhaling in the direction required, or how can I make acquaintance with your bowels?"

"My bowels!"

"The abdomen, and the greater and lesser intestines. Well, never mind, I can get at them another way; give your heart a slap, so. That's your liver. And that's your diaphragm."

"His lordship having found the required spot (some people that I know could not) and slapped it, the Aberford made a circular spring and listened eagerly at his shoulder-blade; the result of this scientific pantomime seemed to be satisfactory, for he exclaimed, not to say bawled,

"Hallo! here is a viscount as sound as a roach! Now young gentleman," added he, "your organs are superb, yet you are really out of sorts; it follows you have the maladies of idle minds, love, perhaps, among the rest; you blush, a diagnostic of that disorder; make your mind easy, cutaneous disorders, such as love, &c., shall never kill a patient of mine, with a stomach like yours: so, now to cure you!" And away went the spherical Doctor, with his hands behind him, not up and down the room, but slanting and tacking, like a knight on a chess-board. He had not made many steps, before, turning his upper globule, without affecting his lower, he hurled back, in a cold business-like tone, the following interrogatory:

"What are your vices?"

"Saunders," inquired the patient, "which are my vices?"

"M' Lord, lordship hasn't any vices," replied Saunders, with dull matter-of-fact solemnity.

"Lady Barbara makes the same complaint," thought Lord Ipsden.

"It seems I have not any vices, Dr. Aberford," said he, demurely.

"That is bad; nothing to get hold of. What interests you, then?"

"I don't remember."

"What amuses you?"

"I forget."

"What! no winning horse, to gallop away your rents?"

"No, sir!"

"No opera girl, to run her foot and ankle through your purse?"

"No, sir! and I think their ankles are not what they were."

"Stuff! just the same, from their ankles up to their ears, and down again to their morals; it is your eyes that are sunk deeper into your head. Hum! no horses, no vices, no dancers, no yacht; you confound one's notions of nobility, and I ought to know them, for I have to patch them all up a bit just before they go to the deuce."

"But I have, Dr. Aberford."

"What?"

"A yacht! and a clipper she is too."

"Ah!—(Now I've got him.)"

"In the Bay of Biscay she lay half a point nearer the wind than Lord Heavyjib."

"Oh! bother Lord Heavyjib, and his Bay of Biscay."

"With all my heart, they have often bothered me."

"Send her round to Granton pier, in the Firth of Forth."

"I will, sir."

"And write down this prescription." And away he walked again, thinking the prescription.

"Saunders," appealed his master.

"Saunders be hanged."

"Sir!" said Saunders, with dignity, "I thank you."

"Don't thank me, thank your own deserts," replied the modern Chesterfield. "Oblige me by writing it yourself, my lord, it is all the bodily exercise you will have had to-day, no doubt."

"The young viscount bowed, seated himself at a desk, and wrote from dictation—

"Dr. Aberford's Prescription.

"Make acquaintance with all the people of low estate, who have time to be bothered with you; learn their ways, their minds, and, above all, their troubles."

"Won't all this bore me?" suggested the writer.

"You will see. Relieve one fellow-creature every day, and let Mr. Saunders book the circumstances."

"I shall like this part," said the patient, laying down his pen. "How clever of you to think of such things; may not I do two sometimes?"

"Certainly not; one pill per day. Write—Fish the herring! (that beats deer-stalking.) Run your nose into adventures at sea; live on ten-pence, and earn it. Is it down?"

"Yes, it is down; but Saunders would have written it better."

"If he hadn't he ought to be hanged," said the Aberford, inspecting the work. "I'm off, where's my hat? oh, there; where's my money? oh, here. Now look here, follow my prescription, and

"You will soon have mens sana in corpore sano; And not care whether the girls say yes or say no."

neglect it, and—my gloves; oh, in my pocket—you will be *blase*, and *ennuye*, and—(an English participle, that means something as bad,) God bless you!"

"And out he scuttled, glided after by Saunders, for whom he opened and shut the street door."

Lord Ipsden's yacht is ordered to be got ready forthwith, and in a few days the nobleman and his valet are in sight of the Fifeshire hills, looking for "people of low estate:"—

"Saunders! do you know what Dr. Aberford means by the lower classes?"

"Perfectly, my Lord."

"Are there any about here?"

"I am sorry to say they are everywhere, my Lord."

"Get me some"—(cigarette).

Out went Saunders, with his usual graceful *empressemant*, but an internal shrug of his shoulders.

"He was absent an hour and a half; he then returned with a double expression on his face. Pride at his success in diving to the very bottom of Society, and contempt of what he had fished up thence.

"He approached his Lord mysteriously, and said, *sotto voce*, but impressively, "This is low enough, my Lord." Then glided back, and ushered in, with polite disdain, two lovelier women than he had ever opened a door to in the whole course of his perfumed existence.

"On their heads they wore caps of Dutch or Flemish origin, with a broad lace border, stiffened and arched over the forehead, about three inches high, leaving the brow and cheeks unencumbered.

"They had cotton jackets, bright red and yellow, mixed in patterns, confined at the waist by the apron-strings, but boottailed below the waist; short woolen petticoats, with broad vertical stripes, red and white, most vivid in colour; white worsted stockings, and neat, though high-quartered shoes. Under their jackets they wore a thick spotted cotton handkerchief, about one inch of which was visible round the lower part of the throat.

"Of their petticoats, the outer one was kilted, or gathered up towards the front; and the second, of the same colour, hung in the usual way.

"Of these young women, one had an olive complexion, with the red blood mantling under it, and black hair, and glorious black eyebrows.

"The other was fair, with a massive but shapely

throat, as white as milk; glossy brown hair, the loose threads of which glittered like gold, and a blue eye, which being contrasted with dark eyebrows and lashes, took the luminous effect peculiar to that rare beauty.

Their short petticoats revealed a neat ankle and a leg with a noble swell; for Nature, when she is in earnest, builds beauty on the ideas of ancient sculptors and poets, not of modern poetasters, who, with their airy-like sylphs and their smoke-like verses, fight for want of flesh in woman and vers of fact in poetry as parallel beauties.

"They are, my lads. Continuez!

"These women had a grand corporeal trait; they had never known a corset! so they were straight as javelins; they could lift their hands above their heads!—actually! Their supple persons moved as Nature intended; every gesture was ease, grace, and freedom.

"What with their own radiance, and the snowy cleanliness and brightness of their costume, they came like meteors into the apartment.

"Lord Ipsden rising gently from his seat, with the same quiet politeness with which he would have received two prunes of the blood, said, "How do you do?" and smiled a welcome.

"Fine! hoow's yourself?" answered the dark lass, whose name was Jean Carnie, and whose voice was not so sweet as her face.

"What'n lord are ye?" continued she. "Are ye a juke? I wad like fine to ha'e a crack wi' a juke."

"Saunders, who knew himself the cause of this question, replied, *sotto voce*, "His lordship is a viscount."

"I dinna ken't," was Jean's remark; "but it has a bonny sound."

"What mair would ye ha'e?" said the fair beauty, whose name was Christie Johnstone. Then appealing to his lordship as the likeliest to know, she added, "Nobeility is just a sound itsel, I'm tauld."

"The Viscount finding himself expected to say something on a topic he had not attended much to, answered drily, "We must ask the republicans, they are the people that give their minds to such subjects."

"And yon man," asked Jean Carnie, "is he a lord, too?"

"I am his lordship's servant," replied Saunders, gravely, not without a secret misgiving whether Fate had been just.

"Na!" replied she, not to be imposed upon.

"Ye are stately and prooder than this ane."

"I will explain," said his master. "Saunders knows his value; a servant like Saunders is rarer than an idle viscount."

"My Lord, my Lord!" remonstrated Saunders, with a shocked and most dislatory tone. "Rather!" was his inward reflection.

"Jean," said Christie, "ye ha'e muckle to laern. Are ye for herrin' the day, Vile Count?"

"No! are you for this sort of thing?"

"At this Saunders, with a world of *empressement*, offered the Carnie some cake that was on the table.

"She took a piece, instantly spat it out into her hand, and with more energy than delicacy flung it into the fire.

"Augh!" cried she, "just a sugar an saut butter thegither; buy nae mair at yon shoep, Vile Count!"

The charities of the "daft Lord wi' a bank in his breeks" proceed with singular generosity. He gives ten pounds to this man, and ten pounds to that, until he comes to make bequests to fishermen's daughters of various large amounts, to dispose of lands in Lanarkshire, and at one time we find him "actually beginning to convey a hundred and fifty thousand pounds away, upon a sheet of paper blowing in the wind."

When he had named his residuary legatee, and disposed of certain large bequests, he came to the point—

"Christie Johnstone, what can these people

live on? two hundred a year? living is cheap here—confound the wind.'

"'Twa hundred? Fifty! Vile Count.'

"'Don't call me Vile Count. I am Ipsden, and my name's Richard. Now then, be smart with your names.'

"Three men stepped forward, gave their names, had their widows provided for, and went for their sou'westers, &c.

"'Stay,' said Lord Ipsden, writing. 'To Christina Johnstone, out of respect for her character, one thousand pounds.'

With this a strange love story is interwoven, and a sort of Bob Acres duel occurs, and a kind of Grace Darlingfeat is accomplished by the heroine, and there are many stirring incidents, calculated eminently to excite and interest the reader, but they are not the workings of nature. To show what the author is capable of, we may quote his description of the following scene, consequent on the drowning of fisherman Liston:—

"After the first stupor, the people in the new town collected into knots, and lamented their hazardous calling, and feared for the lives of those that had just put to sea in this fatal gale for the rescue of strangers, and the older ones failed not to match this present sorrow with others within their recollection.

"In the middle of this, Flucker Johnstone came hastily in from the Old Town, and told them he had seen the wife, Beeny Liston, coming through from Granton.

"The sympathy of all was instantly turned in this direction.

"She would hear the news."

"It would fall on her like a thunder-clap."

"What would become of her?"

"Every eye was strained towards the Old Town, and soon the poor woman was seen about to emerge from it; but she was walking in her usual way, and they felt she could not carry her person so if she knew.

"At the last house she was seen to stop and speak to a fisherman and his wife that stood at their own door.

"They are telling her," was then the cry.

"Beeny Liston then proceeded on her way.

"Every eye was strained.

"No! they had not told her.

"She came gaily on, the unconscious object of every eye and every heart.

"The hands of this people were hard, and their tongues rude, but they had shrunk from telling this poor woman of her bereavement—they thought it kinder she should know it under her own roof from her friends or neighbours, than from comparative strangers.

"She drew near her own door.

"And now a knot collected round Christie Johnstone, and urged her to undertake the sad task.

"'You that speak sae laerned, Christie, ye should tell her; we daur na.'

"How can I tell her?" said Christie, turning pale. "How will I tell her? I'll try."

"She took one trembling step to meet the woman.

"Beeny's eye fell upon her.

"Ay! here's the Queen o' Newhaven," cried she, in a loud and rather coarse voice. "The men will ha'e leave the place now y're turned fisherman, I daur say."

"Oh, dinna fleicht on me! dinna fleicht on me!" cried Christie, trembling.

"Mairey on us," said the other, "auld Flucker Johnstone's dochter turned humble. What next."

"I'm vexed for speaking back till ye the morn," faltered Christie.

"Hett," said the woman, carelessly, "let you flea stick i' the wa'. I fancy I began on ye. Aweel, Cirsty," said she, falling into a friendlier tone; "it's the place we live in spoils us—Newhaven's an impudent toon, as sure as death."

"I passed through the Auld Toon, the noo—a place I never speak in; an if they did na glower at me as I had been a strange beast."

"They cam to their very doors to glower at me; if ye'll believe me, I thought shame.

"At the hinder end my passion got up, and I faced a wife East-ye, and I said, 'What gar ye glower at me that way, ye ignorant woman?' ye would na think it, she answered like honey itself—'I'm askin your pardon,' says she; and her man by her side said 'Gang'hame to your ain hoose, my woman, and Gude help ye, and help us a' at our need,' the decent mon. 'It's just there, I'm for,' said I, 'to get my man his breakfast.'

"All who heard her drew their breath with difficulty.

"The woman then made for her own house, but in going up the street she passed the wet coat hanging on the line.

"She stopped directly.

"They all trembled—they had forgotten the coat—it was all over; the coat would tell the tale.

"Aweel," said she, "I could swear that's Liston Carnie's coat, a drouikit wi' the rain;" then she looked again at it, and added, slowly, "if I didn't ken he has his away wi' him at the piloting." And in another moment she was in her own house, leaving them all standing there half stupefied.

"Christie had indeed endeavoured to speak, but her tongue had cloven to her mouth.

"Whilst they stood looking at one another, and at Beeny Liston's door, a voice that seemed incredibly rough, loud, and harsh, jarred upon them; it was Sandy Liston, who came in from Leith, shouting—

"Fifty pounds for salvage, lasses, is na thaat better than staying coward-like aside the women?"

"Whisht! whisht!" cried Christie. "We are in heavy sorrow; puir Liston Carnie and his son Willy lie dead at the bottom o' the Firth."

"Gude help us!" said Sandy, and his voice sank.

"An', oh, Sandy, the wife does na ken, and it's hairt breaking to see her, an hear her; we canna get her tell't; ye're the auldest mon here, ye'll tell her, will ye no, Sandy?"

"No me, that I will not!"

"Oh, yes; ye are kenned for your stoot heart, an' courage, ye come fra facing the sea an' wind in a bit yawl."

"The sea and the wind," cried he, contemptuously; "they be —, I'm used wi' them; but to look a woman i' the face, an' tell her her mon and her son are drowned since yestreen, I haena courage for that."

"All further debate was cut short by the entrance of one who came expressly to discharge the sad duty all had found so difficult. It was the Presbyterian clergyman of the place; he waived them back. 'I know, I know,' said he, solemnly.

"Where is the wife?"

"She came out of her house at this moment, as it happened, to purchase something at Drysale's shop, which was opposite.

"Beeny," said the clergyman, "I have sorrowful tidings."

"Tell me them, sir," said she, unmoved. "Is it a deeth?" added she, quietly.

"It is!—death sudden and terrible: in your own house I must tell it you,—(and may God shew me how to break it to her.)"

"He entered her house.

"Aweel," said the woman to the others, "it maun be some far awa' cousin, or the like, for Liston an' me hae nae near freends. Meg, ye idle hizzys," screamed she to her servant, who was one of the spectators, "your pat is no on yet; div ye think the men will no be hungry when they come in fra the sea?"

"They will never hunger nor thirst ony mair," said Jean, solemnly, as the bereaved woman entered her own door.

There ensued a listless and fearful silence.

"Every moment some sign of bitter sorrow was expected to break forth from the house, but none came; and amidst the expectation and silence the waves dashed louder and louder, as it seemed, against the dyke, conscious of what they had done.

"At last, in a moment, a cry of agony arose, so terrible that all who heard it trembled, and more

than one woman shrieked in return, and fled from the door; at which, the next moment, the clergyman stood alone, collected, but pale, and beckoned. Several women advanced.

"One woman," said he.

Jean Carnie was admitted; and after a while returned.

"She is come to hersel," whispered she; "I am no weel mysel." And she passed into her own house.

Then Flucker crept to the door to see.

"Oh, dinna spie on her," cried Christie.

"Oh, yes, Flucker," said many voices.

"He is kneelin'," said Flucker. "He has her hand, to gar her kneel tae—she winna,—she does na see him, nor hear him; he will ha'e her. He has won her to kneel,—he is prayin, an' greetin aside her. I canna see noo, my een's blinded."

"He's a gude mon," said Christie. "Oh, what wad we do without the ministers."

Sandy Liston had been leaning sorrowfully against the wall of the next house, he now broke out.

"An auld shipmate at the whale fishing! an' noow we'll never lift the dredging sang thegither again, in yon dirty detch that's droond him; I maun ha'e whiskey, an' forget it a'."

"He made for the spirit-shop like a madman, but ere he could reach the door a hand was laid on him like a vice. Christie Johnstone had literally sprung on him. She hated this horrible vice,—had often checked him; and now it seemed so awful a moment for such a sin, that she forgot the wild and savage nature of the man who had struck his own sister, and seriously hurt her, but a month before,—she saw nothing but the vice and its victim, and she seized him by the collar, with a grasp from which he in vain attempted to shake himself loose.

"No! ye'll no gang there at siccan a time."

"Hands off, ye daft jaud," roared he, "or there'll be another deeth i' the toon."

At the noise Jean Carnie ran in.

"Let the ruffian go," cried she, in dismay. "Oh, Christie, dinna put your hand on a lion's mane."

"Yes, I'll put my hand on his mane, ere I'll let him mak a beast o' himself."

"Sandy, if ye hurt her, I'll find twenty lads that will lay ye dead at her feet."

"Haud your whisht," said Christie, very sharply, "he's no to be threatened."

Sandy Liston, black and white with rage, ground his teeth together, and said, lifting his hand, "Wull ye let me go, or must I tak my hand till ye?"

"No!" said Christie, "I'll no let ye go, sae look me i' the face; Flucker's dochter, your auld comrade, that saved your life at Holy Isle,—think o' his face,—an' look in mines,—an' strike me!"

They glared on one another,—he, fiercely and unsteadily; she, firmly and proudly.

Jean Carnie said afterwards, "her eyes were like coals of fire."

"Ye are doing what nae mon i' the toon daur; ye are a bauld, unwise lass."

"It's you mak me bauld," was the instant reply. "I saw ye face the mad sea, to save a ship fra the rocks, an' will I fear a mon's hand, when I can save"—(rising to double her height)—"my feyther's auld freend fra the puir mon's enemy, the enemy o' mankind, the cursed, cursed drink. Oh! Sandy Liston, hoow could ye think to put an enemy in your mouth to steal awa' your brains?"

"This's no Newhaven chat; wha lairns ye sic words o' power?"

"A dede mon!"

"I would na wonder, y're no canny, she's ta'en a' the power oot o' my body, I think." Then, suddenly descending to a tone of abject submission, "What's your pleasure, Flucker Johnstone's dochter?"

She instantly withdrew the offensive grasp, and leaning affectionately on his shoulder, she melted into her rich Ionic tones.

"It's no a time for sin; ye'll sit by my fire, an' get your dinner; a bonny haggis ha'e I for you an Flucker, an' we'll improve this sorrowfu judgment

an' ye'll tell me o' auld times, o' my feyther dear, that likeit ye weel, Sandy,—o' the stormms ye haes weathered, side by side,—o' the muckle whales ye killed Greenland way,—an', abune a', o' the lives ye haes saved at sea, by your daurin an' your skell; an', oh, Sandy, will na that be better as sit an' poor leequid damnation doon your throat, an' gie awa the sense an' feeling o' a man for a sair heid and an ill name.'

"Ise gang, my lamb," said the rough man, quite subdued; "I daur say whiskey will no pass my teeth the day."

"And so he went quietly away, and sat by Christie's fireside."

This is a very favourable example of Mr. Reade's writing. About most of it, there is a commonplace stage flippancy which is offensive in works of this kind, while it is quite irreconcilable with the sentiment intended to be conveyed. The following description of a love scene, for example, is wanting both in truth and refinement:—

"He determined to see her, to ask her forgiveness, to tell her everything, to beg her to decide, and for his part, he would abide by her decision."

"Christie Johnstone, as we have already related, declined his arm, sprang like a deer upon the pier, and walked towards her home, a quarter of a mile distant.

"Gatty followed her, disconsolately, hardly knowing what to do.

"At last, observing that she drew near enough to the wall to allow room for another on the causeway, he had just nous enough to creep alongside, and pull her sleeve somewhat timidly.

"Christie, I want to speak to you."

"What can ye haie to say till me?"

"Christie, I am very unhappy; and I want to tell you why, but I have hardly the strength or the courage."

"Ye shall come ben my hoose if ye are unhappy, and we'll hear your story, come away."

"He had never been admitted into her house before.

"They found it clean as a snowdrift.

"They found a bright fire, and Flucker frying innumerable steaks.

"The baddish boy had obtained them in his sister's name and at her expense, at the flesher's, and claimed credit for his affection.

"Potatoes he had boiled in their jackets, and so skillyfully, that those jackets hung by a thread.

"Christie laid an unbleached table-cloth, that somehow looked sweeter than a white one, as brown bread is sweeter than white.

"But lo, Gatty could not eat; so then Christie would not, because he refused her cheer.

"The baddish boy chuckled, and addressed himself to the nice brown steaks with their rich gravy.

"On such occasions a solo on the knife and fork seemed better than a trio to the gracious Flucker.

"Christie moved about the room, doing little household matters; Gatty's eye followed her.

"Her beauty lost nothing in this small apartment; she was here, like brilliant in some quaint, rough setting, which all earth's jewellers should despise and all its poets admire, and it should show off the stone and not itself.

"Her beauty filled the room, and almost made the spectator ill.

"Gatty asked himself whether he could really have been such a fool as to think of giving up so peerless a creature.

"Suddenly an idea occurred to him, a bright one, and not inconsistent with a true artist's character—he would decline to act in so doubtful a case; he would float passively down the tide of events—he would neither desert her nor disobey his mother; he would take everything as it came, and to begin, as he was there, he would for the present say nothing but what he felt, and what he felt was that he loved her.

"He told her so accordingly.

"She replied, concealing her satisfaction, 'that if he liked her, he would not have refused to eat when she asked him.'

"But our hero's appetite had returned with his change of purpose, and he instantly volunteered to give the required proof of affection.

"Accordingly, two pound of steaks fell before him.

"Poor boy—he had hardly eaten a genuine meal for a week past.

"Christie sat opposite him, and every time he looked off his plate he saw her rich blue eyes dwelling on him.

"Everything contributed to warm his heart, he yielded to the spell, he became contented, happy, gay.

"Flucker ginger-cordialed him, his sister bewitched him."

Mr. Reade must very much improve his style, and acquire much larger experience of the human character, and its passions and affections, before he can hope to take rank as a successful novelist.

NOTICES.

Theory of Politics: an Inquiry into the Foundations of Governments, and the Causes and Progress of Political Revolution. By Richard Hildreth, Author of 'The History of the United States of America.' Clarke, Beeton, and Co.

This treatise on political philosophy, though small in size, is rich in theoretical and practical truth. Of the origin, principles, and forms of government, the author treats with clearness and force, illustrating his statements by historical references and examples. On various political questions there is room for diversity of opinion, and English readers will make allowance for what they will consider American prejudices. But there are some subjects on which the citizens of the States have attained a position far ahead of the people of older countries, and in which their experience may be profitably studied. The general education of the people, and the position of the clergy in relation to the civil institutions of the country, may be specified as examples. Throughout his work Mr. Hildreth makes great use of what he calls 'mysticism,' and 'the prevalence of mystical ideas,' as an element in political affairs. For instance, in commenting on the present state of Great Britain, he says, "If the feudal system has so far died out that the power of the monarch and of the nobility of caste is at an end, that is far from yet being the case with the influence of mystical ideas, which still cast a malign shadow over the social condition of the British nation." What is meant here and elsewhere by 'mystical ideas' is explained in one of the introductory chapters as including superstition, bigotry, fanaticism, and other impulses and feelings by which the popular mind is swayed. In the remarks on this subject we are surprised to find an American speaking of the power obtained "through pure hypocrisy and imposture, in the noted cases of Mohammed and Cromwell!" Of the important influence exercised through the religious feeling in human affairs there is no question, but it is hardly philosophical to distinguish it as one of the elements of political power, more than other common sentiments and affections of human nature upon which external forces exert their influence. We commend Mr. Hildreth's treatise as worthy of careful study, as an able and interesting sketch of the theory of politics, illustrated by historical facts.

Social and Political Economy. By William Lovett. Simpkin, Marshall, and Co.

Mr. HILDRETH's book, which we have just noticed, treats of the theory of politics, or the relations of men in mass, under forms of government, and the orderly constitutions of public society. Mr. Lovett treats chiefly of the personal duties and rights of men as individuals in their several spheres of social and political life. Although much abuse may be made of the sentiment in Goldsmith's 'Traveller,' when he says,—

"In every government, though terror reign,
Though tyrant kings or tyrant laws restrain,
How small, of all that human hearts endure,
That part which laws or kings can cause or cure!"

There is great truth in the succeeding lines,—

"Still to ourselves in every place consigned,
Our own felicity we make or find."

With secret course, which no loud storms annoy,
Slides the smooth current of domestic joy."

Mr. Lovett points out with truth and faithfulness the principles which will ensure a happy and a useful life. His book, being chiefly addressed to the working classes, is full of plain and practical counsels and lessons, but it also presents sound and philosophical views worthy of the consideration of statesmen and philanthropists. The subjects are too varied to admit of our entering on detailed discussion of any of them, and on some points we might dissent from the author's opinions, but we cannot too highly commend the general principles and spirit of the work. It contains much useful information, and abounds in wholesome and practical expositions of truth and duty.

SUMMARY.

AMONG serial publications lately received, we may notice, in Chapman and Hall's 'Reading for Travellers,' *Florian and Crescenz*, a village tale from the Black Forest, by Berthold Auerbach, translated by Meta Taylor. *The Curse of Clifton*, (Clarke, Beeton, and Co.,) by Mrs. Emma Southworth, a tale of the times of the last American war. One of the last chapters contains a spirited description of the burning of the Capitol at Washington by the English under the late Sir George Cockburn, whose recent decease has revived the recollections of that event. *Chamber's Pocket Miscellany* contains the usual variety of instructive and amusing reading. In a series of books with the go-a-head title of the 'Run-and-Read Library,' (Clarke, Beeton, and Co.,) an American work, *I've been Thinking*, by A. S. Roe, is edited by the Rev. Charles B. Taylor, with omissions, by which Mr. Taylor considers that the volume is likely to prove more popular and profitable to English readers. Not having the original at hand, we cannot say whether Mr. Taylor has taken liberties with this work, which we know, in the case of another American work edited by him, the writer deemed most unjustifiable. The book contains many useful lessons, and is pervaded by a good and healthy spirit. The energy and enterprise of the American youths who chiefly figure in the story are characteristic of the country, and the national peculiarities may render the examples more striking to English readers. *The Illustrated London Magazine*, (Piper Brothers and Co.,) edited by Richard Brinsley Knowles, supported by well-known authors and artists, has literary and artistic merit far superior to what might be expected in so cheap a monthly periodical.

A journal of *The Climate of Nottingham during the Year 1852*, together with descriptions of the atmospheric phenomena which occurred in that year, as recorded at Highfield House Observatory, near Nottingham, by Edward Joseph Lowe, Esq., and Arthur S. H. Lowe, Esq., is a valuable contribution to English meteorological literature. Along with the details of observations, which will be useful to scientific men, there are many comments and remarks such as will interest the general reader. In each month there is given a calendar of nature, as observed by the authors, showing the progress and changes of animal and vegetable life at the season. To men of science no commendation of the Messrs. Lowe's book is necessary; but apart from the scientific details, for which delicate philosophical instruments are required, there are many remarkable and beautiful phenomena which every lover of nature may take pleasure in noticing, for the observation of which this journal of 'The Climate of Nottingham' may serve as an instructive and pleasing guide.

In the Library Edition of the new issue of the *Waverley Novels* (A. and C. Black), the seventeenth volume contains 'St. Ronan's Well.' Besides the frontispiece and vignette, by Solomon, there is a clever initial woodcut, designed by Edward Corbould, representing the house of Meg Dods, the Scottish Dame Quickly, with the sign-post, the old postboy, the lassie Eppie, and other adjuncts of the inn.

LIST OF NEW BOOKS.

- Akerman's (T. Y.) *Legends of Old London*, post 8vo, 3s. 6d.
 Another Book about Wesleyan Methodism, 12mo, cloth, 6s.
 Beamish's (Rev. H. H.) *Truth Spoken in Love*, fcap. 8vo, 6s.
 Blaikie's *Philosophy of the Mind*, 4 vols., 8vo, cloth, 43s.
Bleak House, by C. Dickens, 8vo, cloth, £1 1s.
 Campbell's (A.) *Christian Baptism*, 12mo, cloth, 4s. 6d.
 Chambers's *Educational Course—German Grammar*, 3s. 6d.—
 Advanced Latin Exercises, 2s.
 Crichton's *Memor*, by Rev. J. W. Taylor, crown 8vo, 5s.
 Churchill's *Lebanon*, 3 vols., post 8vo, 2nd edition, £2 2s.
Cyclopaedia of Moral and Religious Anecdote, 4th edit., 5s.
 Dalziel's *Powers of the Creator*, &c., 4to, Vol. 2, £2 2s.
Domestic Commentary on the New Testament, 12s. 6d.
 Old, Vol. 1, imp. 8vo, 16s.
Formby's Sacred Songs, 4to, boards, 6s.
Four Gospels in Greek, fcap. 8vo, cloth, 1s. 6d.
 Geldart's (Mrs.) *May Dundas*, fcap. 8vo, cloth, 3s.
Hartwig's Sea Bathing, 12mo, sewed, 2s. 6d.
 Henderson's (W.) *Homeopathy*, 2nd edit., post 8vo, 3s. 6d.
 Hilpert's *German and English Dictionary*, 2 vols. 8vo, 16s.
Household Words, 8vo, cloth, Vol. 7, 5s. 6d.
Johnston's Natural History of the Eastern Borders, 10s. 6d.
Law (The) and the Testimony, 8vo, cloth, 12s.
 Liebig and Kopp's *Analytical Report*, 1850, Vol. 4, 8vo, £1 1s.
Lynch's Lectures, fcap. 8vo, cloth, 3s.
Newman's History of the Hebrew Monarchy, 3rd edit., 8s. 6d.
 Parker's (T.) *Theism, Atheism, and Popular Religion*, 9s.
 Paxton's *Botanical Dictionary*, new edition, 12mo, 16s.
 Rawstorne's (Rev. W. E.) *Sermons*, 12mo, Vol. 2, 6s.
 Reid's *Essays on Intellectual Powers of Man*, post 8vo, 5s.
Rowbotham's Guide for Tourists, by Dr Le Voye, 2s. 6d.
 Smith's (J. P.) *Memoirs*, by J. Medway, 8vo, cloth, 12s. 6d.
 Southworth's (D. E. M.) *Mark Sutherland*, 18mo, 2s.
Stepping-Stone to Roman History, 18mo, sewed, 1s.
Story's (R.) Guthrum the Dane, 8vo, 2nd edition, 7s. 6d.
Strickland's Queens of Scotland, 8vo, cloth, Vol. 4, 10s. 6d.
Taylor's Hippolytus and the Christian Church, &c., 3s. 6d.
Unaen Hand, 18mo, cloth, new edition, 2s. 6d.
Victor Hugo's Rhine, crown 8vo, cloth, 1s. 6d.; sewed, 1s.
Winslow (O.) on the Atonement, 7th edition, fcap. 3s. 6d.
Person Decension, 5th edition, fcap., 5s.

THE BRITISH ASSOCIATION.

THE twenty-third Meeting of the British Association was opened on Wednesday evening, at Hull, in the presence of a crowded local audience, by the retirement of the old President, Colonel Sabine, in favour of the President elect, Professor Hopkins. The usual Address, which we give *verbatim* elsewhere, was listened to with interest, and the meeting was raised to a high pitch of enthusiasm by a hearty and brilliant comment upon it from Professor Sedgwick. One of the chief characteristics of the opening of the present meeting has been a desire to make the truths of abstract science more popular and readily intelligible. The President's Address was for the first time illustrated at intervals by diagrams, of Lord Rosse's nebulae, and of Dové's Maps of the system of isothermal lines, for example, and a special public meeting, including ladies, was held on Monday, in the Town Hall, under the Presidency of the Mayor of Hull, in order to give the Assistant General Secretary, Professor Phillips, an opportunity of explaining the objects and business of the Association in detail to the local inhabitants. We are glad to find that the benefits of the British Association for the Advancement of Science are being more sought after by those who reside in the localities where its meetings are held, and who are more prompt to become Associates for the time being. The number of Associates alone, including ladies, registered the first day was 445. The people of Hull have come forward most largely and liberally in providing all that is needed for accommodation and welcome, and the attendance at the Sections on Thursday was extremely gratifying. Dr. Scoresby's researches "On the Surface Temperature and Great Currents of the Northern Oceans," excited a great deal of interest in the Physical Section, but the Geological, notwithstanding the absence of Murchison, Forbes, Jukes, and several other eminent geologists, proved the chief source of attraction. It cannot be expected that *all* our leading scientific men can so manage their engagements as to assemble together every year. At one meeting we have some great names, and at another others. The meeting is never without a sufficiency of stars to light it up into interest, and to secure the real business of the Association. This year the popularity of the Geological Section is brilliantly sustained by the fine oratory and high devotional fervour of Professor Sedgwick. A word on the opening business of this Section on Thursday will serve at once

to show the benefits arising from this annual gathering of philosophers. Some local observers, acting under the inspiring influence of the Association, had been registering some facts relating to the gradual encroachment of the sea, along the coast north of the Humber: their papers were read at the meeting. Professor Phillips, the geological historian of Yorkshire, commented practically on them, as presented to him by his own personal researches; and Professor Sedgwick, by a cheerful and eccentric grasp of the philosophy of the subject, filled his listening audience with a devotional love and interest in the working of nature's laws, as godly and invigorating as it was sincere and true.

Estimating highly as we do the important step which has been taken for the first time this year, of calling together a preliminary public meeting among the inhabitants, we shall commence our report by giving Professor Phillips's wise and intelligible address on that occasion.

Professor Phillips's Speech at the Town Hall.

I have great pleasure in appearing before you as one of the couriers of the British Association—a sort of bird that comes before a large gathering of persons—who are to follow, and arriving here charged with many communications relating to the objects and the proceedings of their approaching visit. But I must be allowed to premise, that, as one swallow does not make a summer, so you must not take me as a specimen even of those much larger birds which are to follow. And still less, from the small number of philosophers now assembled, must you form any opinion of the sort of gathering that will immediately follow. I apprehend that the number of eminent men that will be congregated in this town will be very great. But it is my duty to say a few words touching that great body which shortly we shall have the honour to meet; because—unfortunately for the Association—but, perhaps, fortunately for Hull—this is the first time that the members of that large body have held any of their meetings in this place. Before the meeting is closed, however, you will have the opportunity of knowing that one of the most distinguishing marks of the progress of science in modern times, is the ready application of its discoveries to many of the purposes of life. I believe you will have the opportunity of knowing that many of the most abstract and curious discoveries in science—things which at first appear very remote from ordinary and practical application—will be found to have a very great bearing upon all our mercantile and trading interests. The way in which I think I shall make this clear to you will be this:—viz., by stating that upwards of ONE HUNDRED communications which have already been handed in, and these are only a sample of what we are to have, because a great number of persons bring their communications with them; they work at them, in fact, up to the latest moment, so as to embody in them the very latest discoveries up to the very moment of the meeting, and having done so they put their papers into their pockets, and hand them in only on their arrival; so that, in addition to the hundred papers and upwards, of which I have spoken as already received, or of which notice has been given, I have no hesitation in announcing my confident anticipation that there will be a far greater number of which no notice whatever has yet been given. Now you shall have an opportunity of judging how far these papers are likely to prove, not only interesting, but important to the locality in which we are assembled. This list—which has been struck off for distribution among those who are here present—and of which I trust to be able to give a copy to every person who is here—is but a rough proof in a necessarily imperfect state. From it, however, you will form some judgment upon the point which I have just named—that of local interest. But now let me say a few words touching the Association itself. Perhaps it may occur to you, who have your Philosophical Societies and your Mechanics' Institutes, and a great number of voluntary institutions of a local kind for the advancement and diffusion of knowledge—it may occur to you to inquire of what par-

ticular use a British Association for like purpose can be? Every large town, you will say, has its institutions for the advancement of science; what is the use of a British Association, which is limited to no one place, and confined to no one set of men? My answer is, that the very fact that it is not limited to one place, and is limited to no one set of men, forms one of the leading elements of its utility. If it were limited to one place, it must have been in London, where institutions for the promotion of every science and every department of knowledge already exist, and where we meet every day with those who are engaged in and directing all those learned pursuits. Would another Institution located solely in London confer upon the country an amount and variety of benefit equal to that dispensed by a Society visiting in succession the hives and fields of industry in all the leading ports and provinces? And if but one set of men composed the Association, they would have all the disadvantages of those who cultivate but one branch of knowledge, and are necessarily ignorant of much that others are doing and discovering in other branches, which, nevertheless, are perpetually showing, in the truths and phenomena which they elicit, an important bearing one upon another; and the inevitable consequence would be—as we all but too well know—that individuals thus circumstanced come to the study of even their own departments with views too much contracted, and with judgments too much influenced by those partial triumphs of knowledge to which their labours and their attention have been confined; whereas, by coming together in one Society, there is a happy communication of knowledge, which binds together all the people of the place and those who come from a distance, and the benefit is mutual and pleasant; so that I have great confidence in predicting, that how great soever may be any differences which may have existed in this town on popular occurrences, I will be bound to say that, as the time approaches, and during the entire continuance of this great celebration, you will forget your occasional disagreements; for a week, at least, those jarring notes will not be heard; you will be tied, as it were, together in one amiable bond of fraternity, and I expect you will find it a pleasant thing. I will now tell you what are our modes of proceeding; and I may state it to you that there is a general object which is ever kept in view in all these proceedings. The object is not the personal gratification of those who come from a distance to make speeches. They have no such object; but they come for the purpose of forming a compact body to advance the interests of science—an Association strong enough to appeal to the people, to the government of this realm, and to the governments of foreign countries. It has been most truly stated that, during the more than twenty years' life of this Association, from that object it has never swerved. No man can lay to the charge of the Association a single censure on that ground. It has been true to its object. In its search for truth it has sent out its exploring parties—not indeed to the arctic pole, for it had nothing to do with the sending out of the expedition of Sir John Franklin—but to the antarctic seas it has caused an expedition to be sent; and it has caused the establishment of observatories of a most important kind all over the world. It has expended a very large sum; a great many persons would be surprised to hear that it has expended so great an amount for the prosecution of special researches in various departments of knowledge. More than 15,000*l.* in money have been paid for these purposes out of voluntary contributions at such meetings as this which is about to open in Hull. This has been for work actually done at the instance of the Association; but in addition to this it has published a great number of valuable books. It has issued many volumes of what are called the *Transactions of the Association*, and many other valuable works; so that, altogether, it has expended about 40,000*l.* in the course of the last twenty-three years, for the benefit of science and in the diffusion of useful knowledge. It has no personal object to secure. It has the courage to go to the universities, to sea-

faring ports, to manufacturing and agricultural districts of England, Scotland, and Ireland, to travel north, east, south, and west. It goes everywhere—in response to invitations given by large and spirited communities. I believe there is not a place that it has visited that has not been highly gratified as well as benefited by its visit. The subjects we propose to discuss are connected with practical objects; this Association takes, indeed, a large sphere of action, yet has it clearly limited objects, and its labourers are divided into appropriate sections. As for instance, one section is devoted to mathematical and physical sciences. Now, if any of the ladies who are here present are wondering how they can be interested in geometrical problems, or in the curious arts of algebra, or the odd-looking things that are called equations, I beg to say that these are not all displayed in the lecture-room, or in the presence of a popular assembly. I can assure you, from some slight knowledge of the matter, that subjects of this curious description are really not produced with such exceeding ease that gentlemen will be much disposed to be scribbling them on boards in the meetings of the sections. They cost too much labour and thought to be thus lightly dealt with. Many of the philosophers would be much obliged if you would not ask them to demonstrate their problems. They will rather dwell on the results. They will speak to you of astronomy, and of what has been discovered by means of these abstruse sciences, rather than of the means by which those results have been accomplished. The greatest philosophers of the day will have pleasure in stating, in the plainest words, what are the latest discoveries in meteorology and all the physical sciences by which the world has been so much benefited. You will not be asked to share the toil of the process, but to enjoy the results of the labour, whether in that department to which I have just now alluded, or in the sections of Chemical Science, Geology, Zoology, and Botany, Statistics, or Mechanical Science. They will meet together to read papers, and to join in discussions on those subjects, and they will expect that the people of Hull who attend them will take their share in those discussions. So that if anything happens to be within the knowledge of those who come from a distance, we shall have the most ready means of deriving instruction from them; and I can assure you that none will more thankfully receive information than those strangers. And I may add that, on this point, they will expect both to be questioned, and to receive information—and I trust they will be met in the same spirit—that there may be a reciprocal desire to give and receive benefit. Now, the papers will not be of interminable length—they will be much shorter than my speech. The discussions are expected to be the matters of chief interest, and it is very fortunate for the Association that it meets in a town where, from the intelligence of its inhabitants, as well as from the inquiries which will be made by eminent strangers, the most valuable results may fairly be anticipated. To those discussions I earnestly solicit your attention; because, I assure you, you are very likely to receive from them a kind of information, and to have it conveyed to you in a manner far more interesting and impressive than could be procured by any other means. For there is this peculiarity about the discussions; there is that excitement that no man has the time to choose his words and wrap them up in mysterious sentences. He must tell you what are the truths which he has discovered, and what are the thoughts that are, at that moment, burning in his breast. And these philosophers, you will find, are exceedingly plain-spoken people, who will be ready to communicate, and you will easily understand that which is imparted by such powerful minds. We have seven meetings every day, and at the same time. No person has yet been discovered who had the power of dividing himself into seven parts; and, accordingly, you must choose for yourselves which of the seven sections, and at what hour you will attend. It occurs to me that there

may be reasons for speaking before the public in a very plain manner on this point. "Oh," some will probably say, "if I had known what sort of a meeting this was I should certainly have gone to hear them." Well, then, you must take a little work which we call our Journal. We shall publish every morning at eight o'clock, commencing with Wednesday next, a journal, which—I am sure I mean no disparagement to the very excellent gentlemen who have the management of the newspapers of this locality, and which have done for the Association very good service by making known our objects and proceedings—but our journal will be a considerable improvement upon theirs. It will be its province to tell you of future events, and not, like those, merely to record what have gone by. It will tell you where each of the committees will meet at ten, and the sections at eleven, and what are the papers which are to occupy their attention until three o'clock in the afternoon. We call that our journal, which we intend to issue at eight o'clock in the morning, and of which every person interested in the proceedings of the Association will not only wish to receive a copy, but should be invited to peruse it, so as to enable him or her, in the most judicious and profitable manner, to lay out the plan of their individual proceedings for the day. You will find, for instance, in Section A, Mathematical and Physical Science. Possibly, a paper by Sir David Brewster, as well as Lord Wrottesley, whose papers are here. If you find, in the same section, that Mr. Sollitt is about to read a paper on the polishing of mirrors for telescopes, you will judge then whether you should like to hear that paper read. I should. If you see that it is No. 1 on the list—of course it will be read the first. You may see probably that Professor Sedgwick has a paper in Section C. Geology, but not at the beginning. Well, you will hear Mr. Sollitt, and then Professor Sedgwick; and, after that, very likely Sir W. Jardine will have another paper in Section D. I know that papers have been prepared by them, and so most likely they will read them. When you are tired of these, you will probably wish to hear, in another section, Colonel Chesney give a discourse on some European subject. Thus you will go through this journal, and plan out your day. Your ticket admits you to every one of these sections. Wherever you go, you will find no difficulty in deriving from your attendance as much benefit as can be got from it. These sections will meet on Thursday, Friday, Saturday, Monday, and Tuesday; and the journal will be issued on each of those days, and then it is ended. Now this is the reason why you have been called together to-day; you must make up your minds what you intend to do, and the best thing which you can do, I assure you, is by beginning at once, by attending the general meeting on Wednesday, and afterwards such other meetings as you may find opportunity for. And now, I can imagine feelings of a certain class which may possibly be experienced in some of your minds. I have had them once, and can therefore appreciate what probably yours may be. The learned Professor then proceeded to describe his own feelings at the first annual meeting of the Association in York; when, the meeting having been appointed for the Monday, he on the Sunday afternoon, after service, walked in the Museum Gardens, for the purpose of meeting and welcoming any strangers, and he found, for some time, that nobody had come; at last he discovered four persons, all friends of his own, who had come from a considerable distance, to lay the foundation of this Association. Well, it was not the thing he had anticipated; these four persons—eminent as they were—would not make a meeting. But our meeting (added Professor Phillips) was held, nevertheless, on Monday, Tuesday, and Wednesday, and numbered no less than 355 persons. Therefore, if you now go through the streets of Hull to-day, remember that our meeting is on Wednesday, and if you don't find them full of people whom you have never seen before, you must reflect that the time of these persons is very valuable; that they come from a distance, and that the time they can devote to this meeting is very limited; you must

not expect them all at once, and especially not long before the meeting. But I am happy to say that a large attendance is expected; that the arrangements which have been made for their reception are well made, and that a numerous and efficient committee is ready to bid them welcome. They will expect to find rooms at which there will be information where to have lodgings, at whatever time one or another may happen to arrive, as well as every possible information as to the localities of the sections and the other rooms of meeting, and the order of the proceedings; and all that is already prepared for them; so that if you find but few persons have as yet arrived in Hull, don't be at all surprised about it, nor in the least discouraged. And if persons ask me, as they probably may, "Are so-and-so coming?" or, if another remarks, "I am sorry to hear that a certain person is not coming to this meeting," it is a matter which does not give me concern. Some people are so little aware of the great number of persons belonging to this Association, that they think a great deal because such an eminent man is not coming. Of course he is not; and there are a hundred others who are not coming; but we have so many illustrious men in our Society, that we can dispense with the attendance of not a few. There is, for instance, one patron and father of this Association—Sir David Brewster; he has a very important official situation at St. Andrews, and cannot now be spared from its duties; but we expect the Dean of Ely, Lord Wrottesley, and Dr. Lloyd, of Dublin. In the Chemical Section we shall have Dr. Faraday; Professor Graham, it is just possible, may not be here; but I know that Professor Johnson will come; so will Professor Hunt and Dr. Daubeny. In Section C. whom would you more wish to see than that excellent Yorkshireman, Professor Sedgwick? Then, in Natural History, you are sure to have Mr. Babington, Dr. Balfour, Dr. Arnott, Dr. Lancaster, and our friend Mr. Spence. In Geography and Ethnology we shall certainly have Colonel Chesney, Sir James Ross, Dr. Scoresby, and many others. In the Statistical Section we shall have Mr. Heywood, M.P., Professor Hancock, and other eminent men; whilst the Mechanical Section will enjoy the presence of Mr. Fairbairn, Sir George Rennie, &c. These are all strangers for whom accommodation has already been prepared; and I will say that, among the acts which we shall have to remember with pleasure in connexion with our visit to this town, will be the fact that most creditable preparation has been made by the gentlemen of Hull for the reception of their anticipated guests. I believe there will be a very prosperous meeting. I am quite convinced there will be a most respectable meeting. I think the situation in which the meeting is held is one of very much encouragement. I should like to say a word about the evening meetings. The first evening meeting will be on Wednesday, when the president, Mr. Hopkins, will deliver his inaugural address. Those who are acquainted with Cambridge well know that one of its brightest ornaments, as a mathematician, is the gentleman who will do us the honour to preside. On Thursday afternoon, the Public-rooms will be open for promenade. That is a most interesting kind of assembly, where you meet and converse freely together, and where such questions about equations and symbols as people like to ask, may be easily put, and afford the greatest pleasure in being answered. Again, on Friday, we meet in the saloon of the Mechanics' Institute, for the delivery of a discourse upon a subject in which I doubt not you are all extremely interested, and when it will be my duty to describe to you some of the principal peculiarities in the geological structure of this county, and to state some important deductions which appear naturally to result therefrom. On Saturday, there will be some other occupations of which I am not able particularly to speak, but I understand that the Public-rooms will resound with music. On Monday, my friend Mr. Hunt will deliver a discourse on the mysteries of photography, and I have the pleasure to inform you that on another occasion I intend to introduce a very small picture which I have had the good

fortune to persuade my friend, the moon, to draw; she has taken her own likeness. On Tuesday, we repeat our conversation in the Public-rooms, and on Wednesday there is to be a concluding meeting. One part of the proceedings at the final meeting usually relates to the sum of money which has been gathered, and the mode of its distribution. There are, as you are aware, in connexion with the meeting of the Association, certain expenses which are kindly paid by the people of Hull. There are still other payments to make by the Association itself, and the funds wherewith to meet them are derived from the sale of tickets. Everybody who attends the meetings of the Association will provide himself with a ticket. I hope no person will go away from this meeting under the delusion that there can be access to any of the Society's meetings in any other way than by ticket; but then these tickets have this advantage, they admit you to every privilege of this annual association. There are also ladies' tickets, transferable from one lady to another; they may be transferred half-a-dozen times a day, and will admit half-a-dozen ladies, in turn, to any of the meetings. The tickets can only be obtained at the Reception-room. The Reception-room is now open, and it is to my mind clear that that will be the great place of rendezvous during the meeting. At the end of the meeting it will be stated what sum of money has been given away, and for the prosecution of what researches in science it has been voted; and you will then judge whether the local committee has done wisely in inviting the Association to Hull, and whether they have proved that a large proportion of the community felt interested in the visit of the Association, and whether they would wish it to meet here again. It will be a great disappointment to you if you find that no strangers have responded to your call; and it will be to strangers a great disappointment if they do not meet with a large attendance of the inhabitants. I have the greatest confidence that the meeting will be a good one, both as to the performance and the actors. [Professor Phillips then sat down amidst the applause of the audience.]

Dr. COOPER said—Mr. Mayor, ladies, and gentlemen, it will be in the recollection of many here present, that last autumn, when a deputation from the public bodies of this town was sent to Belfast to invite the British Association to visit this place, they gave, on their return, their report to a public meeting in this hall; and that resolutions were come to by that meeting, pledging the town to receive the Association, and to do the utmost in its power to further the objects of the meeting, and, at the same time, appointing a numerous committee to carry out those resolutions. That committee desire now to give an account of the nature of their proceedings, and it will be for you to decide upon the manner in which they have discharged the duties confided to them. A committee then having been formally convened, shortly after the period I have been alluding to, proceeded to business, and in virtue of a power conferred upon them by the public meeting, they added a great number of other gentlemen to their body. Eventually that committee amounted to sixty or seventy members. The object which the committee always kept in view was to interest every class of the community in the meetings which were going to take place; and for that purpose they selected gentlemen from every class. Lord Londesborough took the lead, and to him, individually, the committee were deeply indebted for his efficient and personal assistance; then there were the bankers, the clergy, the leading merchants, and the professional gentlemen of the town, and a great many others. Then it became necessary that their proceedings should be recognised by that great body for whose reception they were preparing. This was done in May last. To carry out the multifarious objects of the committee, four sub-committees, and ultimately a fifth, were appointed. The first was for finance; by means of this committee a guarantee fund, which had been commenced, was increased to the amount of 2000L. Some 25 per

cent. of this fund was called up, and the committee were in hope that nothing more would be required; but, in consequence of some expenses not then calculated upon, and to which large undertakings are often liable, it is now probable that a slight additional call will be necessary. The second committee was the lodging and reception one. The duty of this committee has been exceedingly onerous, but they have discharged it with great credit to themselves. It was no less than that of seeking out for all the eligible lodgings in the neighbourhood of the meeting, and of afterwards apportioning them amongst the applicants; three hundred beds have thus been provided, and are now pending their appointment as applied for. I think we shall have every reason to feel deep obligation to the Lodging Committee. The third committee was that for section rooms. Their duty was to provide the rooms in which the real business of the Association was to be transacted; that consisted of seven sections, requiring that number of rooms, with as many committee-rooms adjoining. Two large rooms for evening meetings had also to be provided—one for promenade, and the other for the general proceedings of the Association. With the exception of the Public-rooms, which, of course, subsist by rental, not one of the proprietors of any of the rooms have claimed any recompense: we have them all gratuitously. [Cheers.] The rooms which have been selected are all in the most convenient situations, within a limited circle, easily approached from the Reception-rooms, and exceedingly convenient. All are in the immediate neighbourhood of the Sculcoates Hall, of which the Public-rooms form the western extremity. The Sculcoates Hall is the reception room. One of the section-rooms is in Mason-street, three in Waltham-street, one in the Philosophical Hall, one in Christ Church-street, and one in the Infirmary. Then these rooms had to be fitted up, and that has been done at some considerable expense, but in a manner that will satisfy both philosophical and public taste. A third duty which this committee had was to select secretaries for sections, and to cause those secretaries to associate together in a committee, for the purpose of requesting papers, and receiving applications from parties to read papers. Professor Phillips has stated that a large number has been received, and a very large proportion of them are of a local character, and prepared by gentlemen of the town. The fifth and last of the sub-committees was the Excursion Committee, whose labours have been very great. Their duty was to provide all matters in what he might describe as the pleasure department; it was one, however, intended also to be richly fraught with instruction; the promenades on two evenings were matters within the province of this committee. Thursday and Tuesday are the evenings, and they will take place in the Public-rooms, adjoining the Reception-rooms. The Public-rooms have been specially painted and decorated for this occasion; during the last few weeks a very large sum of money has been expended in these preparations, and particularly in those which are of a scientific and artistic character; indeed in every way the greatest pains have been taken, so that I don't scruple to say that these proceedings are likely to be of the highest possible interest to the town. The grand saloon of the Mechanics' Institute also has been re-decorated, and is in an exceedingly beautiful state.

The President's Address.

GENTLEMEN OF THE BRITISH ASSOCIATION—Before I proceed to those remarks which I may have to address to you on matters of science, let me avail myself of this opportunity of expressing to you the sense I entertain of the honour which you have conferred upon me in electing me to the presidency of the Association. When this high office was first proposed to me, I could not but feel the importance of the duties attached to it. I felt, also, that there must be others who had higher claims to the honour than myself. But I was aware how frequently difficulties will occur in the

immediate appointment to such offices of the persons most competent to fill them; and, after having been invited to the office by those best qualified to decide such points, I conceived it right not to shrink from its responsibilities, but at once to accept it, with the determination of performing the duties it might impose upon me to the best of my ability. I have had the less hesitation in adopting this course from a knowledge of the effective and ready assistance which I should always receive, not only from our excellent secretary, Mr. Phillips, but also from my predecessor in this chair, who is so intimately acquainted with the whole working of the Association, to which he has rendered so long and so cheerfully such invaluable services. After thanking you, gentlemen, as I do most sincerely, for the high compliment you have paid me, and assuring you of my best efforts in the cause of the Association, I proceed to lay before you such statements and remarks on scientific subjects as have presented themselves most prominently to my own mind for this occasion. In doing this, I cannot but regret my inability to do justice to many subjects which might be interesting to you; and, indeed, the limited time for which I should be justified in demanding your attention to an oral communication, will oblige me to omit, this evening, several even of those points which I was prepared to bring under your notice.

Astronomical research still continues to prove to us how much more populous is that portion of space occupied by the solar system than was suspected only a few years ago. Between the 23rd of June, 1852, and the 6th of May, 1853, nine new planets were discovered, of which seven were found since the last meeting of the Association. Of these nine planets, our countryman, Mr. Hind, has discovered four. The number now known, exclusive of the large planets, but including the four old asteroids, amounts to twenty-six; nor have we any reason to suppose that we have yet approximated to the whole number of these minor planetary bodies. All those which have been recently recognised appear like stars of magnitudes not lower than the eighth or ninth, and are consequently invisible to the naked eye. The search for them has now assumed, to a considerable extent, a more systematic form, by a previous mapping of the stars up to a certain magnitude, and contained within a belt of a few degrees in breadth on either side of the ecliptic. Any small planet will in the first instance be inserted in the map as a small star, but will on the re-examination of the same area, some time afterwards, be recognised in its true character from the fact of its having moved from the place in which it was first observed. This mapping of the ecliptic stars from the eighth to higher magnitudes is still comparatively limited; nor has the length of time during which any one portion, perhaps, of the space thus mapped, been sufficiently great to ensure the passage through it, within that time, of any planet whose period is as long as the possible periods of those which may yet remain unknown to us. Analogy would therefore lead us to conclude in favour of the probability of their number being much greater than that at present recognised. All those which are now known lie between the orbits of Mars and Jupiter, but many may exist more distant and of much smaller apparent magnitudes; and thus almost the same careful telescopic research may be necessary to make us acquainted with some of our planetary neighbours as with the remoter regions of space. Nor is the telescopic mode the only one by which we may detect the existence of remoter planets; for as Uranus betrayed the existence of Neptune, so may the latter hereafter reveal to us the retreats in which some more distant member of the system has hitherto hidden himself from the observation of man.

There would seem to be a tendency in the human mind to repose on the contemplation of any great truth after its first establishment. Thus, after the undisputed reception of the theory of gravitation and the complete explanation which it afforded of the planetary motions, men seemed to think little of any further revelations which the solar system

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might still have to make to us respecting its constitution, or the physical causes which it calls into operation. The recent discovery, however, of so many planets shows how imperfectly we may yet be acquainted with the planetary part of the system; and the continual discovery of new comets seems to indicate that in this department still more remains to be done. These curious bodies, too, may possibly have to reveal to us facts more interesting than any which the planets may still have in reserve for us. The experience of these latter bodies, if I may so speak, is more limited, and their testimony, consequently, more restricted. But they have already told us a noble tale. In moving, as they do, in exact obedience to the law of gravitation, and thus establishing that law, they have affirmed the highest generalization in physical science which it has been accorded to the human mind to conceive. At the same time the approximate circularity of their orbits prevents their passing through those varied conditions to which comets are subjected. Thus, while the latter obey, in common with the planets, the laws of gravitation, they frequently present to us, in their apparent changes of volume, form, and general character, phenomena the explanation of which has hitherto baffled the ingenuity of astronomers. One of the most curious of these phenomena has been recently observed in Biela's comet. This comet has a period of about six years and a half, and has been observed a considerable number of times on its periodical return to the neighbourhood of the sun. It appeared in November, 1845, and in the following January the phenomenon alluded to was observed for the first time. The comet had become divided into two distinct parts, with separate nuclei. Sometimes the one and sometimes the other appeared the brighter till their final disappearance. The elements of the orbits of these twin comets were calculated by Professor Plantamour, from observations made at Geneva in 1845-6, assuming them to be uninfluenced by each other's attractions. The correctness of these elements could only be determined on the next return of the comet, which took place in the autumn of last year, one of the nuclei having been first seen by Signor Secchi, at Rome, on the 25th of August, and the other on the 15th of September. The subsequent observations made upon them show that the elements of the orbits, as previously calculated from the Geneva observations, were far from exact. A complete discussion of all the observations which have been made on these comets during their last and previous appearances, is now in progress by Professor Hubbard, of the Washington Observatory. The distance between the two nuclei was much increased on their last appearance. Judging from the apparent absence of all influence and sympathy between these bodies, it would seem that their physical divorce, though without known precedent, is final and complete.

Stellar astronomy continues to manifest a vigour and activity worthy of the lofty interest which attaches to it. Bessel had made a survey of all stars to those of the ninth magnitude inclusive, in a zone lying between 45° of north, and 15° of south declination. Argelander has extended this zone from 80° of north to 31° of south declination. It comprises more than 100,000 stars. Last year was published also the long-expected work of M. F. G. W. Struve, containing a catalogue of stars observed by him at Dorpat, in the years 1822-43. They are principally double and multiple stars, which had been previously micrometrically observed by the same distinguished astronomer. Their number amounts to 2874; the epoch of reduction is 1830. The introduction contains the discussion of various important points in stellar astronomy.

Notices have been brought before us, from time to time, of the nebula observed through Lord Rosse's telescope. This noble instrument, so unrivalled for observations of this kind, continues to be applied to the same purpose, and to add yearly to our knowledge of the remotest regions of space into which the eye of man has been able to penetrate. Almost every new observation appears to confirm the fact of that curious tendency to a

spiral arrangement in these nebulous masses, of which mention has so frequently been made. To those persons, however, who have neither seen the objects themselves, nor careful drawings of them, a mere verbal description must convey very indistinct conceptions of the spiral forms which they assume. I have, therefore, had the drawings made, which are suspended in the room for your inspection. They will convey to you at once an idea of the spiral forms alluded to. I am indebted to the kindness of Lord Rosse for the use of the original drawings, and for these large and accurate copies of them to our excellent secretary, Mr. Phillips, who, with his usual ready activity in the cause of the Association, has had them prepared for the purpose of this evening. Most of them are representations of nebulae which have been very recently observed.

Two pairs of these are respectively drawings of the same objects, the larger one of each pair representing the nebula as seen through the large telescope, the other as seen through a smaller one of Lord Rosse's, of only three feet aperture. You will observe how little resemblance there is between them, except in the external boundary, and how entirely the characteristic details of the larger drawings are lost in the smaller ones; and if I had exhibited to you drawings of some others of these nebulae, as seen by previous observers with inferior telescopic power, it would have been still more obvious to you how necessary are telescopes with large and perfectly ground mirrors for the development of the real character of these astonishing and enigmatical aggregations of stars.

It is for this reason that it has been thought desirable to have the nebula of the southern hemisphere examined with higher telescopic power than has hitherto been brought to bear upon them. You are aware with what a noble devotion to science Sir J. Herschel spent several years at the Cape of Good Hope in the examination of the southern heavens; but his telescopic power was limited to that of a reflector of $18\frac{1}{2}$ inches aperture. It is now proposed to send out to some convenient station in the southern hemisphere a reflecting telescope, with a mirror of four feet aperture. Mr. Grubb, of Dublin, has undertaken to construct such an instrument (should the plan proposed be adopted) under the general superintendence of Lord Rosse, Dr. Robinson, Mr. Lassel, and one or two other gentlemen. The general construction of the instrument, and the best mode of mounting it, have been decided on with careful deliberation, after consulting all the best authorities on the subject.

These important preliminaries being agreed upon, and an estimate of the whole expense of the instrument having been made by Mr. Grubb, the deputation appointed for the purpose proceeded to wait on Lord Aberdeen, to ascertain whether the government were willing to bear the expense which the plan proposed would involve. His lordship expressed himself, without hesitation, as favourable to the undertaking, but said that, since it involved a grant of money, it would be necessary to consult the Chancellor of the Exchequer, who, supposing him to take a favourable view of the subject, would probably bring it before the House of Commons among the estimates of the ensuing year. With this answer the deputation could not be otherwise than perfectly satisfied, nor could they fail also to be gratified by the perfect courtesy with which they were received. Judging from all we know respecting Mr. Gladstone's enlightened views on subjects of this nature, and the favourable manner in which the House of Commons has always received propositions for the advancement of science, we have, I think, every reason to hope that my successor in this chair may have the satisfaction of announcing to you another proof of the liberality of the government in their acceptance of the plan proposed to them. In such case, the result, I doubt not, will afford another proof that the Association is doing effectively what it professes to do as an association for the advancement of science.

The refinement of modern methods of astrono-

mical observation has become so great, that astronomers appear very generally to think that a higher degree of refinement in the calculations of physical astronomy than has yet been attained is becoming necessary. Mr. Adams has been engaged in some important researches of this kind. He has corrected an error in Burckhardt's value of the moon's parallax; and he has also determined to a nearer approximation than that obtained by Laplace, the secular variation in the moon's mean motion. The former investigation is published in an appendix to the Nautical Almanac for 1856; the latter has been very recently presented to the Royal Society.

Before I quit this subject, I may state that an "American Ephemeris and Nautical Almanac for 1855," has been published this year. It is the first American Nautical Almanac, and is considered to reflect great credit on the astronomers of that country. It is under the superintendence of Lieut. C. H. Davis, assisted in the physical department by Professor Peirce.

No one has contributed more to the progress of Terrestrial Magnetism, during the last few years, than my distinguished predecessor in this chair. Formerly we owed theories on this subject much more to the boldness of ignorance than to the just confidence of knowledge; but from the commencement of the systematic observations which Col. Sabine has been so active in promoting, this vague and useless theorising ceased, to be succeeded, probably ere long, by the sound speculative researches of those who may be capable of grappling with the real difficulties of the subject, when the true laws of the phenomena shall have been determined. Those laws are coming forth with beautiful precision from the reductions which Col. Sabine is now making of the numerous observations made at the different magnetic stations. In his address of last year, he stated to us that the secular change of the magnetic forces was confirmed by these recent observations, and also that periodical variations depending on the solar day, and on the time of the year, had been distinctly made out, indicating the sun as the cause of these variations. During the present year, the results of the reduction of the observations made at Toronto have brought out, with equal perspicuity, a variation in the direction of the magnetic needle going through all its changes exactly in each lunar day. These results, with reference to the sun, prove, as Col. Sabine has remarked, the immediate and direct exercise of a magnetic influence emanating from that luminary; and the additional results now obtained establish the same conclusion with regard to the influence of the moon. It would seem, therefore, that some of the curious phenomena of magnetism which have hitherto been regarded as strictly terrestrial, are really due to solar and lunar, as much as to terrestrial magnetism. It is beautiful to trace with such precision these delicate influences of bodies so distant, producing phenomena scarcely less striking either to the imagination or to the philosophic mind, than more obvious phenomena which originate in the great luminary of our system.

New views, which have recently sprung up respecting the nature of Heat, have been mentioned, though not in detail, by my two immediate predecessors in the chair of the Association. They are highly interesting theoretically, and important in their practical application, inasmuch as they modify in a considerable degree the theory of the steam-engine, the air-engine, or any other in which the motive power is derived immediately from heat; and it is correct theory alone which can point out to the practical engineer the degree of perfection at which he may aim in the construction of such machines, and which can enable him to compare accurately their merits when the best construction is arrived at.

A theory which proposes to explain the thermal agency by which motive power is produced, and to determine the numerical relations between the quantity of heat and the quantity of mechanical effect produced by it, may be termed a *Dynamical theory of heat*. Carnot was the first to give to such a theory a mathematical form. His theory

rested on two propositions which were regarded as axiomatic. The first embodied the abstract conception of a perfect thermo-dynamic engine, and has been equally adopted by the advocates of the new theory of heat. Again, suppose a given quantity of heat to enter a body by any process, and thereby to change its temperature and general physical state; and then, by a second process, suppose the body to be restored exactly to its primitive temperature and condition.—Carnot's second fundamental proposition asserts, that the quantity of heat which passes out of the body into surrounding space, or into other bodies, *in the form of heat*, during the second operation, is precisely the same as that which passed into the body during the first operation. This view does not recognise the possibility of heat being lost by conversion into something else, and in this particular is at variance with the new theory, which asserts that heat may be lost by conversion into *mechanical effect*. To elucidate this distinction, suppose a quantity of water to be poured into an empty vessel. It might then be asserted that, in emptying the vessel again, we must pour out just as much water as we had previously poured in. This would be equivalent to Carnot's proposition with respect to heat. But suppose a part of the water while in the vessel to be converted into *vapour*; then it would not be true that in emptying the vessel the same quantity of water, *in the form of water*, must pass out of the vessel as had before passed into it, since a portion would have passed out in the form of *vapour*. This is analogous to the assertion of the new theory with regard to heat, which may be lost, according to that theory, by conversion into mechanical effect, in a manner analogous to that in which water may be said to be lost by conversion into vapour. But the new theory not only asserts generally the convertibility of heat into mechanical effect, and the converse, but also more definitely, that, whatever be the mode of converting the one into the other—and whether heat be employed to produce mechanical effect, or mechanical force be employed to produce heat—the same quantity of the one is always the equivalent of the same quantity of the other. This proposition can only be established by experiment. Rumford, who was one of the first to adopt the fundamental notion of this theory as regards the nature of heat, made a rough attempt to determine the relation between the force producing friction and the heat generated by it; but it was reserved for Mr. Joule to lay the true foundation of this theory by a series of experiments which, in the philosophical discernment with which they were conceived, and the ingenuity with which they were executed, have not often, perhaps, been surpassed. In whatever way he employed mechanical force to produce heat, he found, approximately, the same quantity of heat produced by the same amount of force, the force being estimated in *foot-pounds* according to the usual mode in practical mechanics, *i.e.* by the motive power employed in raising a weight of 1lb. through the space of 1 foot. The conclusion adopted by Mr. Joule is that 1° Fahr. is equivalent to 772 *foot-pounds*.

These results are unquestionably among the most curious and interesting of those which experimental research has recently brought before us. When first announced some ten or twelve years ago, they did not attract the attention which they deserved; but more recently their importance has been fully recognised by all those who cultivate the department of science to which they belong. Of this Mr. Joule received last year one of the most gratifying proofs, in the award made to him by the Council of the Royal Society of one of the medals placed annually at their disposal. It may not be known to many of you that we have in Mr. Joule a pupil, a friend, and fellow townsman of Dalton.

This theory is in perfect harmony with the opinions now very generally entertained respecting *radiant heat*. Formerly light and heat were regarded as consisting of material particles continually radiating from luminous and heated bodies respectively; but it may now be considered as established beyond controversy that light is propagated through space by the vibrations of an exceedingly refined

etherial medium, in a manner exactly analogous to that in which sound is propagated by the vibration of the air; and it is now supposed that radiant heat is propagated in a similar manner. This theory of radiant heat, in accordance with the dynamical theory of which I have been speaking, involves the hypothesis that the particles of a heated body, or a particular set of them, are maintained in a state of vibration, similar to that in which a sonorous body is known to be, and in which a luminous body is believed to be. At the same time there are remarkable differences between light and heat. We know that light is propagated with enormous velocity, whether in free space or through transparent media; sound also is propagated with great rapidity, and more rapidly through most media than through air. Heat, on the contrary, whatever may be the velocity with which it may radiate through free space, is usually transmitted with extreme slowness through terrestrial media. There appears to be nothing in light analogous to the slow *conduction* of heat. Again, the vibrations which render a body sonorous have no tendency to expand its dimensions, nor is there reason to suppose that luminous vibrations have any such tendency on luminous bodies; whereas, with the exception of particular cases, heat does produce expansion. It is principally from this property of heat that it becomes available for the production of motive power, as, for instance, in the expansion of steam. These phenomena of the slow conduction of heat, and the expansion of heated bodies, are proofs of differences between light and heat not less curious than the analogies above indicated. They must, of course, be accounted for by any perfect theory of heat. Mr. Rankine has written an ingenious paper on a molecular theory of heat, but before any such theory can be pronounced upon, it will be necessary, I conceive, to see its bearing on other molecular phenomena, with which those of heat are in all probability intimately connected. Professor W. Thomson has also given a clear and compendious mathematical exposition of the new dynamical theory of heat, founded on Mr. Joule's principle of the exact equivalence of heat and mechanical effect. This is not, like Mr. Rankine's, a *molecular* theory, but one which must henceforth take the place of Carnot's theory.

Before leaving this subject I may add that Professor Thomson and Mr. Joule are now engaged in further experiments which will serve to elucidate the new theory of heat. Some account of the commencement of these experiments has already been brought before the Royal Society.

Many years ago Gay Lussac made an ascent in a balloon for the purpose of making observations on the air in the upper regions of the atmosphere; but it is only very recently that systematic observations of this kind have been attempted. Last autumn, four balloon ascents were made by Mr. Welsh, under the guidance of the distinguished aeronaut, Mr. Green. Attention was chiefly directed to the determination of the pressure, temperature, and moisture of the air at different altitudes. The decrease of temperature in ascending was very irregular, being changed even, in some cases, to an increase; but the mean result gives a decrease of 1° Fahr. for every 348 feet of ascent, agreeing within 5 or 6 feet of the result obtained by Gay Lussac. The latter gentleman ascended 23,000 feet; the greatest height attained by Mr. Welsh was 22,940 feet. A repetition of similar observations in ascents made from different points of the earth's surface could scarcely fail to lead to valuable information for the science of Meteorology.

An immense contribution, of which brief mention was made by my predecessor, has been made within the last few years to this science, by the publication of Professor Dové's Isothermal Maps, giving us the temperature of the lowest portion of the atmosphere (that which determines the climate of every region) for nearly all accessible points of the earth's surface. An immense number of thermometric observations had been made at fixed stations, or by travellers in almost every part of the globe, but were lying comparatively useless for want of adequate discussion. This task was under-

taken some years ago by M. Dové. It was not merely a task of enormous labour, but one requiring great critical acuteness and sound philosophical judgment, and these qualifications M. Dové brought to his work, which has resulted in the excellent maps alluded to, accompanied by a considerable amount of letterpress, full of interesting generalizations, and written in the genuine spirit of inductive philosophy.

His maps present a great number of isothermal lines, *i.e.*, lines passing through all those places which, at an assigned period of the year, have the same temperature, each line indicating a particular temperature differing by a few degrees from those of the adjoining lines. Besides a large map giving these lines for January and July, the months of extreme winter and summer temperature, there are smaller ones giving similar lines for all the different months. An English edition of these maps has been just published.

We may easily conceive how a great ocean current of warm water from the tropics may affect the temperature of the atmosphere in the colder regions into which it may penetrate, but it is only since the publication of these maps that we have had any adequate idea of the extent of this influence, or been able to appreciate the blessings conferred on the shores of north-western Europe, and especially on our own islands, by the Gulf-stream. This great current, though not always under the same name, appears, as you are probably aware, to traverse the Atlantic in a north-westerly direction till it reaches the West India Islands and the Gulf of Mexico. It is then reflected by the American coast, and takes a north-easterly direction to our own shores, extending beyond Iceland into the North Sea. It is to the enormous mass of heated water thus poured into the colder seas of our own latitudes that we owe the temperate character of our climate; and not only do the maps of M. Dové enable us to assert distinctly this general fact, but also to make an approximate calculation of the amount to which the temperature of these regions is thus affected. If a change were to take place in the configuration of the surface of the globe so as to admit the passage of this current directly into the Pacific across the existing isthmus of Panama, or along the base of the Rocky Mountains of North America into the North Sea—a change indefinitely small in comparison with those which have heretofore taken place—our mountains, which now present to us the ever-varying beauties of successive seasons, would become the unvarying abodes of the glacier, and regions of the snow-storm; the beautiful cultivation of our soil would be no longer maintained, and civilization itself must retreat before the invasion of such physical barbarism. It is the genial influence of the Gulf-stream which preserves us from these evils. Among its effects on our climate I may mention one which may not be without its local interest along this coast, especially for those who may wish to visit it during the winter for health as well as for pleasure. The temperature of the atmosphere to the north of this island is so ameliorated by the Gulf-stream in the depth of winter, that the isothermal lines for the month of January along the whole eastern coast of Great Britain and the opposite western coast of the continent, run north and south instead of following their normal east and west direction, thus showing that Scarborough or any watering-place on the same coast much farther to the north, enjoys as temperate a climate in the depth of winter as the coast of Kent. In the early spring, however, it becomes considerably colder than on the latter coast.

My predecessor in his Address informed us of an application made to our Government by that of the United States, to adopt a general and systematic mode of observing phenomena of various kinds at sea, such as winds, tides, currents, &c., which may not only be of general scientific interest, but may also have an important bearing on navigation. The plan proposed by Lieut. Maury, and adopted by the American government, is to have the required observations regularly made by the commanders of vessels sent out to sea. I am happy to be able

to state to you that our Admiralty have given orders for similar observations to be made by those who have command of English vessels; and we trust also that proper persons will be appointed without delay for the reduction of the mass of observations which will thus soon be accumulated.

The science of Geology may be regarded as comprising two great divisions—the physical and the paleontological portions. The former may be subdivided into its chemical and dynamical branches. The chemical department has never made any great progress, though abounding in problems of first-rate interest—such, for instance, as the formation of coal, the segregation of mineral matter constituting mineral veins of all descriptions, the processes of the solidification and crystallization of rocks, of the production of their jointed and laminated structure, and many others. Interesting experiments are not altogether wanting on points such as these, but not sufficient to constitute, as far as I am aware, a positive foundation and decided progress in this branch of the science. The problems, doubtless, involve great difficulties, both as regards the action of the chemical agencies themselves and the varied conditions under which they may have acted. The accomplished chemist alone can combat the difficulties of the former kind, and the geologist those of the latter. Both these characters must be united in any one who may hope to arrive at the true solution of these problems. We cannot too earnestly invite attention to this branch of geology on the part of those best qualified to contend with its difficulties.

The dynamical, or, more strictly, the mechanical department of the science, has received a much larger share of attention. In fact, almost all theories and speculations of geologists, independently of organic remains, belong to it, and a large portion of the work of geologists in the field has been devoted to the observation of phenomena on which it treats. *Phenomena of elevation*, those which have immediately resulted from the action of the subterranean forces which have so wonderfully scarred and furrowed the face of our globe, have been made the objects of careful research. It is to this probably violent and desolating action that we owe the accessibility of the mineral sources of our mining districts, as well as all those exquisite beauties of external nature which the mountain and the valley present to us. The absence of all order and arrangement would seem, on a superficial view, to be the especial characteristic of mountainous districts, and yet the nice observations of the geologist has detected, in such districts, distinct approximations to general laws in the great dislocations and upheavals in which the mountains and the valleys have originated. The more usual law in these phenomena consists in the approximate parallelism of all those great lines of dislocation and chains of mountains, the formation of which can be traced back to the same geological epoch. That this law is distinctly recognisable throughout districts, sometimes of many hundred miles in extent, is clearly established, but some geologists contend that it may also be recognised as prevailing over much larger geographical areas than any single geological district presents to us. M. Elie de Beaumont was the originator, and has been the great advocate of this extension of the theory of parallelism. He extends it, in fact, to the whole surface of the earth, using the term *parallelism* in a certain modified sense, to render it applicable to lines drawn on a spherical instead of a plain surface. His theory asserts that all great lines of dislocation, and, therefore, all mountain chains originating in them, wherever situated, may be grouped into *parallel systems*, and that all the lines or mountain chains belonging to any one system were produced simultaneously by one great convulsion of the earth's crust. This theory has been advocated by him many years, but he has recently published his latest views respecting it, and has made an important addition, which may, in fact, be regarded as an independent theory. Each of the parallel systems already mentioned will have its *characteristic direction*, to which all the lines of that system are parallel. This new theory

asserts that these characteristic directions are not determined, as it were, by accident or chance, but that they have certain relations to each other, so that the respective systems to which they belong are disposed over the earth's surface, according to a distinct symmetrical arrangement. For the details of this curious theory I can only refer to the author's work, or to the analysis which I gave of it last February, in my address to the Geological Society. I feel it right, however, to add, that after an attentive examination of the subject, the evidence adduced by M. de Beaumont in support of the last mentioned theory has failed to convey conviction to my own mind. With reference to the parallelism of contemporaneous lines of elevation, no one, I conceive, will deny the truth of M. de Beaumont's theory in its application to many geological districts of limited extent; but it will probably be the opinion of most English geologists that, in attempting to extend it to districts far remote from each other, he has overstepped the bounds of legitimate induction from facts with which we are at present acquainted. Every one, however, who studies M. de Beaumont's work, in whatever degree he may be disposed to adopt or reject the theoretical views of that distinguished geologist, will admit the ability and the knowledge which he has brought to bear on the subject, and the advantages which must result from the ample discussion which he has given it.

One favourite subject of speculation in the physical branch of geology has been, at all times since the origin of the science, the state of the interior of our planet, and the source of the high temperature observed at all considerable depths beneath its surface. The terrestrial temperature at a certain depth in each locality (about 80 feet in our own region) remains constant during the whole year, being sensibly unaffected by the changing temperature of the seasons. The same, of course, holds true at greater depths, but the lower we descend the greater is this invariable temperature, the increase being proportional to the depth, and at the rate of 1° Fahr. for about every 60 or 70 feet. Assuming this rate of increase to continue to the depth of 50 miles, we should arrive at a temperature about twice as great as that necessary to fuse iron, and sufficient, it is supposed, to reduce nearly the whole mass of the earth's solid crust to a state of fusion. Hence the opinion adopted by many geologists is, that our globe does really consist of a solid shell, not exceeding 40 or 50 miles in thickness, and an interior fluid nucleus, maintained in a state of fusion by the existing remains of the heat to which the whole terrestrial mass was originally subjected. It might, at first sight, appear that this enormous mass of molten matter, enclosed in so thin a shell, could scarcely be consistent with the general external condition and temperature of our globe; but it is quite certain that the real external temperature and this supposed internal temperature of the earth are not inconsistent with each other, and that no valid argument of this kind can be urged against the above hypothesis.

The above estimate, however, of the thickness of the earth's solid crust, entirely neglects the possible effects of the enormous pressure to which the terrestrial mass at any considerable depth is subjected. Now this pressure may produce effects of two kinds bearing directly on the question before us. In the above calculation, terrestrial matter placed at the depth of 40 or 50 miles, with a pressure of more than 200,000 pounds on the square inch, is assumed to be fusible at the same temperature as if it were subjected merely to the ordinary atmospheric pressure; whereas the temperature of fusion may possibly be very much increased by such immense pressure as that I have mentioned. In such case, the terrestrial matter may be retained in a solid state at much greater depths than it otherwise would be—*i.e.*, the solid crust may be much thicker than the above estimate of 40 or 50 miles. Again, in this estimate, it is assumed that heat will pass as easily through the most superficial portion of the earth's mass, as through the compressed portions at considerable depths. Now, in this assumption there is, I think, a great *a priori* improbability, and

especially with reference to those superficial rocks in which observations on the increase of terrestrial temperature in descending have generally been made; for these rocks are, for the most part, sedimentary strata, which in general, independently of the effect of pressure, are doubtless worse conductors than the older, more compact, and more crystalline rocks. But if heat passes through the lower portions of this terrestrial mass with more rapidity than through its uppermost portion—*i.e.*, if the *conductive power* be greater at greater depths—the temperature at considerable depths must increase *more slowly* as we descend, than it is observed to increase at the smaller depths to which we can penetrate, and consequently it would be necessary, in such case, to descend to a greater depth before we should reach the temperature necessary to produce fusion. On this account also, as well as from the increased temperature of fusion, the thickness of the earth's crust may be much greater than the previous estimate would make it.

It has been for the purpose of ascertaining the effects of great pressure that Mr. Fairbairn, Mr. Joule, and myself, have undertaken the experiments in which we have for some time been engaged at Manchester. The first object in these experiments is the determination of the effect of pressure on the temperature of fusion of as many substances as we may be enabled to experiment upon. We expected to meet with many difficulties in the use of the enormous pressures which we contemplated, and these expectations have certainly been fully verified; but we were also satisfied that those difficulties might be overcome by perseverance and patience, and in this also we have not been disappointed, for I may now venture to assert that our ultimate success, with respect to a number of substances, is beyond doubt. Without the engineering resources, however, at Mr. Fairbairn's command, success would have been hopeless.

At present our experiments have been restricted to a few substances, and those of easy fusibility; but I believe our apparatus to be now so complete for a considerable range of temperature, that we shall have no difficulty in obtaining further results. Those already obtained indicate an increase in the temperature of fusion proportional to the pressure to which the fused mass is subjected. In employing a pressure of about 13,000 lbs. to the square inch on bleached wax, the increase in the temperature of fusion was not less than 30° Fahr., about one-fifth of the whole temperature at which it melts under the pressure of the atmosphere. We have not yet ascertained the degree in which the conductive power of any substance may be increased when solidified under great pressure. This point we hope to investigate with due care, and also to determine the effects on substances thus solidified, with respect to their density, strength, crystalline forms, and general molecular structure. We thus hope to obtain results of general interest and value, as well as those which may bear more directly on the questions which first suggested the experiments.

Among researches for determining the nature of the earth's crust at depths greater than those to which we can penetrate, I must not omit mention of Mr. Mallet's very elaborate Report on Earthquakes, contained in the last two volumes of the Reports of the Association. This Earthquake Catalogue is preceded by an account of some very interesting and carefully conducted experiments on the transmission of vibrations through solid media. These results will be found of great value whenever the subject of earthquakes shall receive that careful attention which it so well deserves. Insulated observations, and those casual notices which are now frequently given of earthquake phenomena, are utterly useless for scientific purposes. There are no observations which more require to be regulated by system and combination than those of the phenomena in question; and I should rejoice to see the influence of the Association exerted for this purpose, when some efficient mode of proceeding shall have been devised.

Some of the most interesting of recent discoveries

[Sept. 10]

in organic remains, are those which prove the existence of reptilian life during the deposition of some of our oldest fossiliferous strata. An almost perfect skeleton of a reptile belonging to the batrachians or lacertians, was lately found in the old red sandstone of Morayshire. The remains of a reptile were also discovered last year, by Sir Charles Lyell and Mr. Dawson, in the coal measures of Nova Scotia; and a batrachoid fossil has also been recognised in British Coal Shale. But the most curious evidence of the early existence of animals above the lower orders of organization on the face of our globe, is that afforded by the footprints discovered a short time ago in Canada, by Mr. Logan, on large slabs of some of the oldest fossiliferous rocks—those of the Silurian epoch. It was inferred from the more imperfect specimens first brought over, that these footmarks were those of some reptile, but more perfect examples, afterwards supplied by Mr. Logan, satisfied Prof. Owen that they were the impressions of some animal belonging to the articulates, probably a crustacean. Thus the existence of animals of the reptile type of organization during the Carboniferous and Devonian periods is clearly established, but no evidence has yet been obtained of the existence of those animals during the Silurian period. After the discoveries I have mentioned, however, few geologists will perhaps be surprised, should we hereafter find that higher forms of animal life were introduced upon the earth during this early period, than have yet been detected in its sedimentary beds.

Many of you will be aware that there are two theories in geology, which may be styled the theories of *progression* and *non-progression* respectively. The former asserts that the matter which constitutes the earth has passed through continuous and progressive changes, from the earliest state in which it existed to its actual condition at the present time. The earliest state here contemplated may have been a fluid or even a gaseous state, due to the enormous primitive heat of the mass, and it is to the gradual loss of that heat that the progressive change recognised by this theory is chiefly attributed. The theory of *non-progression*, on the contrary, recognises no primitive state of our planet differing essentially from its existing state. The only changes it does recognise being those which are strictly periodical, and therefore produce no permanent alteration in the state of our globe. With reference to organic remains, the difference between these theories is exactly analogous to that now stated with reference to inorganic matter. The theory of *progression* asserts, that there has been a general advance in the forms of organic life, from the earliest to the more recent geological periods. This advance must not be confounded, it should be observed, with that progressive development according to which animals of a higher organic structure are but the improved lineal descendants of those of the lowest grade, thus abolishing all distinction of species. It is merely meant to assert that the higher types of organic being are far more generally diffused at the present time, and far more numerous and varied, than they were at the earlier geological periods; and that, moreover, at the earliest of those periods which the geologist has been able to recognise, some of these higher types had probably no existence at all.

Each successive discovery, like those I have mentioned, of the remains of animals of the higher types, in the older rocks, is regarded by some geologists as an addition to the cumulative evidence by which they conceive that the theory of *non-progression* will be ultimately established; while others consider the deficiency in the evidence required to establish that theory, as far too great to admit the probability of its being supplied by future discovery. Nor can the theory derive present support, it is contended, by an appeal to any properties of inorganic matter, or physical laws, with which we are acquainted. Professor W. Thomson has recently entered into some very interesting speculations bearing on this subject, and suggested by the new theory of heat of which I have spoken. The heat of a heavenly body placed under the same conditions as the sun must, it has been said, be

ultimately exhausted by its rapid emission. This assertion assumes the matter composing the sun to have certain properties like those of terrestrial matter with respect to the generation and emission of heat: but Professor Thomson's argument places the subject on better grounds, admitting, always, the truth of the new theory of heat. That theory asserts, in the sense which I have already stated, the exact equivalence of heat and motive power; and that a body, in sending forth heat, must lose a portion of that internal motion of its constituent particles on which its thermal state depends. Now we know that no mutual action of these constituent particles can continue to generate motion which might compensate for the loss of motion thus sustained. This is a simple deduction from dynamical laws and principles, independent of any property of terrestrial matter which may possibly distinguish it from that of the sun. Hence, then, it is on these dynamical principles that we may rest the assertion that the sun cannot continue for an indefinite time to emit the same quantity of heat as is present, unless his thermal energy be renovated from some extraneous source. The same conclusion may be applied to all other bodies in the universe which, like our sun, may be centres of intense heat; and hence, recognising no adequate external supplies of heat to renovate these existing centres of heat, Professor Thomson concludes that the dispersion of heat, and consequently of physical energy, from the sun and stars into surrounding space without any recognisable means of reconcentration, is the existing order of nature. In such case the heat of the sun must ultimately be diminished, and the physical condition of the earth therefore altered, in a degree altogether inconsistent with the theory of non-progression.

Mr. Rankine, however, has ingeniously suggested an hypothesis, according to which the reconcentration of heat is conceivable. Assuming the physical universe to be of finite extent, and surrounded by an absolute *vacuum*, radiant heat (supposing it to be propagated in the same way as light) would be incapable of passing into the *vacuum*, and would be reflected back to foci corresponding to the points from which it emanated. A reconcentration of heat would thus be effected, and any of the heavenly bodies which had previously lost their heat might, on passing through these foci, be rekindled into bright centres of radiant heat. I have alluded more particularly to this very ingenious, though, perhaps, fanciful hypothesis, because some persons have, I believe, regarded this view of the subject as affording a sanction to the theory of *non-progression*; but even if we should admit its truth to the fullest extent, it may be deemed, I think, entirely inconsistent with that uniformity and permanence of physical condition in any of the heavenly bodies which the theory just mentioned requires in our own planet. The author of this hypothesis did not possibly contemplate any such application of it; nor am I aware how far he would advocate it as really applicable to the actual constitution of the material universe, or would regard it as suggesting a possible and conceivable, rather than a probable, mode of counteracting the constant dispersion of heat from its existing centres. He has not, I think, attempted to work out the consequences of the hypothesis as applied to *light*, to which it must, I conceive, be necessarily considered applicable if it be so to heat. In such case the foci of the reflected heat would be coincident with those of the reflected light, proceeding originally from the same luminous bodies. These foci would thus become visible as the images of stars; so that the apparent number of stars would be constantly increasing with the increasing number of images of each star produced by successive reflections. This will scarcely be considered the actual order of nature. It would be easy to trace other consequences of the application of this hypothesis to light; but I would at present merely state that my own convictions entirely coincide with those of Prof. Thomson. If we are to found our theories upon our knowledge, and not upon our ignorance of physical causes and phenomena, I can only recognise in the existing state of things a passing phase of the material universe.

It may be calculated in all, and is demonstrably so in some respects, to endure under the action of known causes, for an inconceivable period of time, but it has not, I think, received the impress of eternal duration, in characters which man is able to decipher. The external temperature and physical conditions of our own globe may not, and probably cannot have changed in any considerable degree since the first introduction of organic beings on its surface, but I can still only recognise in its physical state during all geological periods, a state of actual though of exceedingly slow progression, from an antecedent to some ultimate state, on the nature of which our limited powers will not enable us to offer any conjecture founded on physical research. The theories, even, of which I have been speaking, may probably appear to some persons as not devoid of presumption; but for many men they will ever be fraught with deep speculative interest; and, let me add, no charge of presumption can justly lie against them, if entered upon with that caution and modesty which ought to guide our inquiries in these remote regions of physical science.

I feel how imperfect a view I have now submitted to you of recent scientific proceedings. I have given no account of the progress of Chemistry, Practical Mechanics, or of the sciences connected with Natural History; nor have I spoken of Ethnology, a science which, though of such recent date, is become of great interest, and one which is occupying the minds of men of great learning and profound research. I can only hope that the chair which I have now the honour to occupy will be henceforth filled by men qualified to do full justice to these important branches of science. I trust that what I have now said, however, will convey to you some idea of the activity which pervades almost every department of science.

I must not conclude this address without some mention of what appear to me to be the legitimate objects of our Association, or without some allusion to circumstances, calculated, I think, to give increased importance to its general working and influence.

There are probably few among us of whom the inquiry has not been made—after any one of our meetings—whether any striking discovery had been brought forward; and most of us will also probably have remarked that an answer in the negative has frequently produced something like a feeling of disappointment in the inquirer. But such a feeling can only arise from a misapprehension of what I conceive to be the real and legitimate objects of the British Association. Great discoveries do not require Associations to proclaim them to the world. They proclaim themselves. We do not meet to receive their announcement, or make a display of our scientific labours in the eyes of the world, or compliment each other on the success we may have met with. Outward display belongs not to the proceedings, and the language of mutual compliment belongs not to the language of earnest-minded men. We meet, gentlemen, if I comprehend our purpose rightly, to assist and encourage each other in the performance of the laborious daily tasks of detailed scientific investigation. A great thought may possibly arise almost instantaneously in the mind, and the intuition of genius may almost as immediately recognise its importance, and partly foresee its consequences. Individual labour may also do much in establishing the truth of a new principle or theory; but what an amount of labour may its multifarious applications involve. Nearly two centuries have not sufficed to work out all the consequences of the principle of gravitation. Every theory, as it becomes more and more perfectly worked out, embraces a greater number of phenomena, and requires a greater number of labourers for its complete development. Thus it is that when science has arrived at a certain stage, combination and co-operation become so essential for its further progress. Each scientific society effects this object in a greater or less degree, but much of its influence may be of a local character, and it is usually restricted by a limited range of its objects. Up to a certain point no means are probably so effective for the promotion of science as those particular

societies which devote themselves to one particular branch of science; but as each science expands, it comes into nearer relations with other sciences, and a period must arrive in this general and progressive advance, which must render the co-operation of the cultivators of different branches of science almost as essential to our general progress as the combination of those who cultivate the same branch was essential to the progress of each particular science in its earlier stages. It is the feeling of the necessity of combination and facility of intercourse among men of science that has given rise to a strong wish that the scientific memoirs of different Societies should be rendered, by some general plan, more easily and generally accessible than they are at present—a subject which I would press on your consideration. It is by promoting this combination that the British Association has been able to exert so beneficial an influence by bringing scientific men together, and thus placing, as it were, in juxtaposition, every Society in the country. But how has this influence been exercised? Not assuredly in the promotion of vague theories and speculative novelties, but in the encouragement of the hard daily toil of scientific research, and by the work which it has caused to be done, whether by its influence over its individual members or on the government of the country. Regarding our Association, gentlemen, in this point of view, I can only see an increased demand for its labours, and not a termination of them, in the future progress of science. The wider the spread of science, the wider will be the sphere of its usefulness.

We should do little justice to the great Industrial Exhibition, which, two years ago, may be literally said to have delighted millions of visitors, or to the views of the illustrious Prince with whom it originated, if we should merely recollect it as a spectacle of surpassing beauty. It appears destined to exercise a lasting influence on the mental culture, and therefore, we may hope, on the moral condition, of the great mass of our population, by the impulse which it has given to measures for the promotion of general education. We may hope that those whose duty it will be to give effect to this impulse, will feel the importance of education in Science as united with education in Art. An attempt to cultivate the taste alone, independently of the more general cultivation of the mind, would probably fail as it would deserve to do. I trust that the better education which is now so universally recognised as essential to preserve our future pre-eminence as a manufacturing nation, will have its foundations laid, not in the superficial teaching, which only aims at communicating a few curious results, but in the sound teaching of the fundamental and elementary principles of science. Art ought assuredly to rest on the foundation of science. Will it, in the present day, be contended that the study of science is unfavourable to the cultivation of taste? Such an opinion could only be based on an imperfect conception of the objects of science, and an ignorance of all its rightful influences. Does the great sculptor or historical painter despise anatomy? On the contrary, he knows that a knowledge of that science must constitute one of the most valuable elements of his art, if he would produce the most vigorous and characteristic expression of the human figure. And so the artist should understand the structure of the leaf, the tendril, or the flower, if he would make their delicate and characteristic beauties subserve to the objects either of decorative art, or to those of the higher branches of sculpture and painting. Again, will the artist appreciate less the sublimity of the mountain, or represent its characteristic features with less truthfulness, because he is sufficient of a geologist to trace the essential relations between its external form and internal constitution? Will the beauty of the lake be less perfectly imitated by him if he possess a complete knowledge of the laws of reflection of light? Or will he not seize with nicer discrimination those varied and delicate beauties which depend on the varying atmosphere of our own region, if he have some accurate knowledge of the theory of colours, and of the causes which govern

the changeful aspect of mist and cloud? It is true that the genius and acute powers of observation of the more distinguished artists may compensate, in a great degree, for the want of scientific knowledge; but it is certain that a great part of the defects in the works of artists of every description may be traced to the defect of scientific knowledge of the objects represented. And hence it is that I express the hope that the directors of the important educational movement which is now commencing with reference to industrial objects, will feel the necessity of laying a foundation, not in the complicated details of science, but in the simple and elementary principles which may place the student in a position to cultivate afterwards, by his own exertions, a more matured acquaintance with those particular branches of science which may be more immediately related to his especial avocations. If this be done, abstract science will become of increased estimation in every rank of society, and its value, with reference at least to its practical applications, will be far better understood than it is generally amongst us at the present time.

Under such circumstances, gentlemen, the British Association could not fail to become of increased importance, and the sphere of its usefulness enlarged. One great duty we owe to the public is to encourage the application of abstract science to the practical purposes of life—to bring, as it were, the study and the laboratory into juxtaposition with the workshop. And, doubtless, it is one great object of science to bring more easily within reach of every part of the community, the rational enjoyments as well as the necessities of life; and thus not merely to contribute to the luxuries of the rich, but to minister also to the comforts of the poor, and to promote that general enlightenment so essential to our moral progress and the real advance of civilization. But still, gentlemen, we should not be taking that higher view of science which I would wish to inculcate, if we merely regarded it as the means of supplying more adequately the physical wants of man. If we would view science under its noblest aspects, we must regard it with reference to man, not merely as a creature of physical wants, but as a being of intellectual and moral endowments, fitting him to discover and comprehend some part at least of the laws which govern the material universe, to admire the harmony which pervades it, and to love and worship its Creator. It is for science, as it leads to this contemplation of Nature, and a stronger sense of the beauties which God has spread around us, that I would claim your deeper reverence. Let us cultivate science, gentlemen, for its own sake, as well as for the practical advantages which flow from it. Nor let it be feared lest this cultivation of what I may term contemplative science, if prosecuted in a really philosophic spirit, should inspire us with vain and presumptuous thoughts, or disqualify us for the due appreciation of moral evidence on the most sacred and important subjects which can occupy our minds. There is far more vanity and presumption in ignorance than in sound knowledge; and the spirit of true philosophy, be it ever remembered, gentlemen, is a patient, a modest, and a humble spirit.

Report of the Proceedings of the Council in 1852-53, as presented to the General Committee at Hull, Wednesday, Sept. 7th, 1853.

1. With reference to the subjects referred to the Council by the General Committee at Belfast, the Council have to report as follows:

2. The Committee appointed for the purpose of "considering a plan by which the transactions of different scientific societies might become part of one arranged system, and the records of facts and phenomena be rendered more complete, more continuous, and more systematic than at present," has obtained from the greater part of its members written communications embodying their respective opinions on the subject in question, find it proposed, that on the return from Italy of Professor Thomson, the originator of the resolution, these

communications shall be discussed and a report prepared.

3. On the request of the general committee being communicated to the president and council of the Royal Society, it was ordered by them that the Huyghenian object-glass of 123 feet focus should be mounted as an aerial telescope in the same manner as when employed in 1719 by Pound and Bradley. The superintendence of the mounting has been undertaken by Mr. De la Rue.

4. In consequence of a communication from the president of the British Association to the president and council of the Royal Society, a committee was formed for the purpose of taking such steps as they should deem most desirable to procure the establishment in the southern hemisphere of a telescope of large optical power for the observation of the southern nebulae. The committee consisted of the following persons:—The Earl of Rosse, president of the Royal Society, chairman; Lord Wrottesley; Sir John Lubbock, Bart.; Sir John Herschel, Bart.; the Dean of Ely; J. C. Adams, Esq.; G. B. Airy, Esq.; Sir David Brewster; E. J. Cooper, Esq.; W. Lassel, Esq.; J. Nasmyth, Esq.; Rev. Dr. Robinson, and the Officers and Council of the Royal Society. The committee have conducted their proceedings partly by meetings and partly by printed correspondence; and having decided on the nature and size of the telescope and the mode of mounting, which they deemed most advisable, they appointed a deputation to communicate with the Earl of Aberdeen, with a view of obtaining the sanction of her Majesty's government and the requisite funds for the construction of the telescope; the council have learned with satisfaction that the deputation was very favourably received by Lord Aberdeen, and that they have reason to entertain the hope that the necessary funds for the construction of the telescope will be included in the estimates presented to parliament in its next session.

5. The resolution of the general committee recommending that the publication of the townland survey of Ireland, upon the scale of an inch to a mile, should be accelerated, has been communicated to the master-general of the ordnance, and a favourable reply received.

6. In compliance with the resolution directing the council to solicit the co-operation of the Royal Society in meteorological investigations attainable by balloon ascents, a communication was addressed to the president and council of the Royal Society, which was most cordially received, and four such ascents have been made under the direction of the Kew Observatory committee, by the aid of funds placed at their disposal by the Royal Society. A highly satisfactory account of these ascents, and of the results obtained, is given in a communication to the Royal Society drawn up by Mr. Welsh, by whom the observations were conducted, of which communication 500 copies have been presented to the British Association.

7. Respecting "a series of experiments on a large scale on the thermal effects experienced by air in rushing through small apertures," a representation, as recommended, has been made to the Royal Society, and a grant of 100*l.* from the government fund at the disposal of the Royal Society has been made to Messrs. Thomson and Joule, for the necessary apparatus.

8. The recommendation of the general committee, that in the event of a survey of the Gulf-stream being undertaken, provision should be made for investigating its zoology and botany, has been communicated to the hydrographer of the Admiralty, and favourably received. A proposition from Dr. Bache, director of the coast survey of the United States, for a joint survey of the Gulf-stream by the United States and Great Britain, having been addressed to the president of the British Association since the Belfast meeting, has been forwarded to the hydrographer of the Admiralty, and has given rise to the following correspondence:—

Dr. Bache to Colonel Sabine.

"Washington, October 20, 1852.

"Dear Sir,—In the report of the proceedings of the recent meeting of the British Association, over

[Sept. 10]

which you presided, I observe a recommendation which refers to a 'Survey of the Gulf-stream.' A systematic survey of the Gulf-stream at and below the surface, for hydrographic purposes, was commenced in connexion with the survey of the coast of the United States, under my direction, in 1844, and has been continued as means served each season since, and we have now carried the examination by sections perpendicular to the stream from off the capes of New York to Cape Hatteras. Might it not be useful to connect the work proposed by your Association with our labours, and if so, who is the proper person to address in regard to the matter? Will you oblige me by informing me in this matter? Yours truly and respectfully,

"A. D. BACHE.

"Colonel Edward Sabine,
President, British Association."

*Colonel Sabine to Rear-Admiral Sir F. Beaufort,
K.C.B., Hydrographer.*

"Woolwich, November 10th, 1853.

"Sir,—I beg leave to enclose the copy of a letter which, as president of the British Association for the Advancement of Science, I have received from Dr. Bache, director of the coast survey of the United States of North America.

"The recommendation of a 'Survey of the Gulf-stream, referred to by Dr. Bache, is contained in the accompanying address of the president at the commencement of the Belfast meeting of the British Association; the paragraph (page 19) is marked, and is to be taken in connexion with the preceding paragraph, referring to the correspondence which has recently taken place between the British and United States governments, and the British government and the Royal Society of London, on the subject of conjoint investigation into the currents and temperatures of the ocean by the ships of both nations, under their respective hydrographic offices.

"It is possible that the British government may have acceded to the proposition to this effect made to them by the government of the United States, and strongly recommend in the report which the Earl of Malmesbury requested from the president and council of the Royal Society; and that the department of the Admiralty over which you preside may have received directions to communicate accordingly with the hydrographic-office of the United States; in this case you may be able to inform me at once to whom I should recommend Dr. Bache to address himself.

"Should, however, no such directions have yet issued, it appears to me most desirable that I should place Dr. Bache's letter in your hands to be communicated, should you think proper to do so, to the lords commissioners of the Admiralty; manifesting, as it does, the desire which is felt by a gentleman in his high official position in the United States, to co-operate with the British navy in accomplishing a 'systematic survey of the Gulf-stream for hydrographic purposes,' in consonance with the general plan proposed by the government of the United States to her Majesty's government.

"I have the honour to be, sir,
"Your obedient servant,

EDWARD SABINE,

"President of the British Association for
the Advancement of Science.

"The Hydrographer of the Admiralty."

"Hydrographic Office, Admiralty, May 5, 1853.

"Sir,—I have to thank you for the copy of Dr. Bache's letter, which shows how rapidly every useful project in art or science is taken up in the United States, and then how energetically it is pushed forward. With respect to its immediate subject, you have long known that a thorough examination of the Gulf-stream has been, in my estimation, an object of great importance to navigation, and you may be therefore sure that whenever, and by whomsoever, it may be undertaken, no effort of mine will be wanting to contribute to its success.

"I confess, however, that I do not at once perceive how the two countries could profitably co-operate in the work; but there is no use in discussing the *modus operandi* till the Admiralty think proper to give me some direct orders to consider

and report upon the subject, which has not yet been done. I have the honour to be, sir,

"Your most obedient servant,
"F. BEAUFORT, Hydrographer.

"Colonel Sabine, R.A., Woolwich."

"London, May 6, 1853.

"My dear Sir,—I have this day received, and at once transmit to you a copy of the British Hydrographer's reply to my letter of November 10, 1852, enclosing a copy of your letter to me on the subject of a joint survey of the Gulf-stream by the United States and this country. You will see, by Sir Francis Beaufort's letter, that he fully concurs with you in recognising the great importance to navigation of such a survey, and that no effort on his part is likely to be wanting to contribute to its success, whencever it shall be undertaken.

"You have probably seen, by a discussion which took place in the House of Lords, on Tuesday, the 26th of April, that Lieut. Maury's proposition for an extensive system of hydrographical inquiry, to be carried out conjointly by the ships of the two nations, has been favourably received by Her Majesty's Government, and the measures required for British co-operation are now under consideration.

"The part which this country might take in a survey of the Gulf-stream must necessarily be under the direction of the hydrographer, and consequent on instructions received by him from the Admiralty. It is to be inferred from Sir Francis Beaufort's reply that it does not consist with the practice of his department to communicate to the Admiralty the fact that the director of the coast survey of the United States has expressed a desire to undertake the survey of the Gulf-stream conjointly with Britain. Under these circumstances, the best suggestion which I am able to make to you in reply to your question to whom your proposition should be made, is, that you should take the same course which Lieut. Maury has done—viz., that the proposition should proceed through your own Secretary of State, and the American minister in this country, to Her Majesty's Secretary of State for Foreign Affairs, by whom it will be communicated to the proper executive departments, and an official reply returned.

"I think that I may safely and confidently assure you that any assistance which the British Association for the Advancement of Science can give in furtherance of a proposition of so much scientific as well as marine importance, will be most readily given.—Believe me, most sincerely yours,

"EDWARD SABINE,
"President of the British Association.

"Dr. A. D. Bache."

9. An application as directed by the general committee has been made to the Master General and Board of Ordnance to supply instruments for measuring the direction and amount of earthquake vibrations in the Ionian Islands, and instructions have in consequence been issued for the construction of the necessary instruments.

10. With reference to the resolutions regarding the agricultural statistics of Great Britain, the committee appointed to carry out the wishes of the general committee have reported to the council that, having ascertained that measures having those objects in view had already been adopted by her Majesty's government, they have confined themselves to an expression of satisfaction therewith, and of readiness to afford any practicable aid on the part of the British Association.

11. On the subject of a grant in aid of the publication of Mr. Huxley's zoological and physiological researches in H.M.S. Rattlesnake, the council have to report that the application made in the last year by the presidents of the Royal Society and of the British Association to the Earl of Derby has been renewed in the present year, to the Earl of Aberdeen by the Earl of Rosse, on behalf of both institutions. No reply has yet been received. The council desire to take this occasion of calling the attention of the general committee to the want, which has been felt in this instance as in many others, of suitable and systematic arrangements of the government for the due publication of the results of scientific researches executed at the

public expense by naval officers acting under the instructions of the Admiralty.

12. The council, having been directed by the general committee to take into consideration the expediency of procuring copies of M. Dové's Maps and Memoir on the Distribution of Heat over the Surface of the Globe, made arrangements for obtaining from M. Dové 250 copies of the Maps from the original stones, and have directed them to be bound up with a translation of M. Dové's Memoir, presented by Colonel Sabine, to be disposed of to members of the Association at the cost price of the plates, the printing, and the binding.

13. In reference to the resolutions respecting the proposed co-operation of the British Association in recommending to her Majesty's government, in conjunction with the Royal Geographical Society, the examination of a portion of the eastern coast of Africa, the exploration of the countries around the river Magdalena, with a view to their natural products, and the ascent of the river Niger to its source, much delay was experienced from the circumstance that no papers whatsoever relative to those subjects were given at the close of the Belfast meeting to the assistant general secretary, and that the council were unable subsequently to procure such memorials, embodying statements of the objects and grounds of the recommendation, as it is the practice of the British Association to obtain in all cases of application to Government and to the East India Company. The subjects were thus necessarily left in the hands of the Royal Geographical Society.

14. The council have great pleasure in expressing their conviction of the increased and increasing usefulness of the establishment at Kew, and to join the report which they received from the superintending committee. The council recommend a continuation of a grant to this establishment to the same amount as in the last year.

15. The council have been informed that the invitations formerly received by the British Association from Liverpool and Glasgow, to hold the meetings of the next two years at these places, will be renewed by deputations appointed to attend at Hull for that purpose. They have also been informed that it is the intention of the mayor, aldermen, and citizens of Gloucester, to present on the same occasion an invitation to the British Association to hold an early meeting in that city.

The Parliamentary Committee, instituted last year at the Belfast meeting, appears to have worked favourable under the presidency of Lord Wrottesley, and many were the congratulations on the advantages to science that were likely to result from its labours. We have not space to-day for the Reports of the Parliamentary Committee, and of the Meteorological Establishment at Kew, but will give them next week.

The General Treasurer's Account from the 1st September, at Belfast, to the 5th September, 1853, of Hull:—

RECEIPTS.	£ s. d.
To balance brought on from the previous account	237 9 11
Life compositions at Belfast meeting	£100 0 0
Life compositions during the year	18 0 0
	<u>118 0 0</u>
Annual subscriptions at Belfast	183 0 0
Annual subscriptions during the year	58 1 0
	<u>241 1 0</u>
Associates' tickets at Belfast meeting	510 0 0
Ladies' ditto ditto	292 0 0
Composition for future publications	5 0 0
Dividends on stock (one year)	101 18 10
Interest on cash from Belfast	8 1 10
From the sale of publications: viz., Reports, Catalogues of Stars, Dove's Lines, &c.	201 9 11
	<u>£1,715 1 6</u>

PAYMENTS.	
For sundry printing, advertising, binding, expenses of Belfast meeting,	216 16 10
petty disbursements for treasurer	175 9 6
Balance of account for printing report of the twentieth meeting	422 2 9
Printing report of the twenty-first meeting	117 12 6
Engraving for report of the twenty-second meeting	350 0 0
Salaries—twelve months	165 0 0
Maintaining the establishment at Kew Observatory	10 0 0
On account of grant for researches on the British Annellida	15 0 0
Experiments on the influence of solar radiations	10 0 0
Dredging on the east coast of Scotland	5 0 0
Ethnological queries	£224 12 5
Balance at bankers	227 19 11
Ditto in the hands of the general treasurer and local treasurers	3 7 6
Total . . . £1,715 1 6	

TOPICS OF THE WEEK.

We greatly fear the time is not yet come when wars are to cease, and "nations to beat their swords into ploughshares, and their spears into pruning-hooks," yet we firmly believe that rulers are more averse to war than formerly, and the protracted negotiations about the Turkish Question indicate an approach at least to settling it by arbitration. We find that there is to be a Peace Congress at Edinburgh, in the month of October next; and trust that no discredit will be thrown on the proceedings by any statements or proposals of an abusive, rash, or impracticable character. The following passages occur in Fenelon's "Telemachus," a work abounding in the most impressive warnings to kings and statesmen against pride and ambition, and the wars and violence which spring from the indulgence of those unruly passions; and also in maxims for the conducting of trade, which for wisdom and liberality are considered by Dugald Stewart as worthy of Adam Smith himself. The arguments of the virtuous prelate in behalf of arbitration in national disputes are as follows:—"It is not just to believe the Sybarites in their own cause," said Mentor; "but neither is it just to believe you in yours." "Whom shall we believe then?" said Idomeneus. "You must believe neither of the two parties. You must take as unripe a neighbouring people, who are not suspected by either side, such as the Sipontines; they have no interest contrary to yours." "But am I obliged," replied Idomeneus, "to attend to any arbiter? Am not I a king? Is a sovereign to be schooled by foreigners as to the extent of his dominion?" Mentor. "If you will stand out, you must judge your right to be good; on the other hand, the Sybarites make no concession; they maintain that their right is undoubted. In this contrariety of feelings, an arbiter chosen by both parties must bring about an agreement, or the fate of arms must decide; there is no middle course. If there were a commonwealth without magistrates or judges, where every family thought they had a right to do justice to themselves against the pretensions of their neighbours, you would be shocked at such frightful disorder, where every house was in arms against its neighbour. With no less displeasure does Providence regard the world, which is one vast republic, if every separate nation, which is but one large family, thinks it has a right to do itself justice by force on all its neighbours. Do you think that kings have a right in the first instance to employ violence to uphold their pretensions, without having attempted all methods of gentleness and humanity? The error of an overbearing monarch often causes ravages, famines, massacres, losses, depravation of morals, the fatal effects of which extend to distant ages. If, on the other hand, he agrees upon an arbiter to terminate the dispute, he shows his equity, his good faith, his

moderation. He publishes the solid reasons on which his cause is founded. The arbiter chosen is a kindly mediator, not a rigorous judge. His decisions are not blindly submitted to, but he is greatly respected; he does not pronounce sentence like a sovereign judge, but he makes proposals, and by his advice something is conceded for the maintenance of peace. 'Si la guerre vient malgré tous les soins qu'un roi prend pour conserver la paix, il a du moins pour lui le témoignage de sa conscience, l'estime de ses voisins, et la juste protection de Dieu.'" We gladly place this striking confirmation of their principles at the disposal of our pacific friends.

The Edinburgh Papers announce the death of James Simpson, Esq., advocate, author of various works, and long distinguished as one of the most zealous promoters of popular education. Mr. Simpson was first known in the literary world by his "Visit to Flanders," shortly after the battle of Waterloo, a book which rapidly passed through several editions. Last year a new edition was issued, with the author's notes of his visit to Paris during the occupation by the allies, which had not before been published. It is one of the best accounts of the events of that time, and of the state of France at the commencement of the peace. In his educational views Mr. Simpson was latterly a devoted supporter of what is called the secular system, being associated with Mr. George Combe in this, as well as in the editorship of the Phrenological Journal. In the establishment and improvement of infant schools throughout the country he took an active part. In private life Mr. Simpson was much respected. The last time we met him was at the annual examination of Bruce Castle Academy, at Tottenham, the excellent institution under the superintendence of Mr. Hill, where he delivered an appropriate and admirable address on the subject of education.

On the 5th instant died, at the age of 70, the Rev. F. A. Cox, D.D., pastor of the Baptist Church at Hackney. Dr. Cox was latterly one of the leading men in many of the religious societies of the metropolis, and among the nonconforming clergy few obtained more universal and merited respect. Of his literary works, the most generally known are the "History of Baptist Missions," and a volume on "Antiquities," reprinted from the Encyclopaedia Metropolitana. A "Life of Melanchthon," a prize essay, entitled "Our Young Men," and various theological works, had also reputation in particular circles. The name of Dr. Cox is worthy of being associated with those of Ryland, Fuller, Cary, Marshman, Ward, Robert Hall, and John Foster, who in recent times have brought honour on the Baptist denomination by their literary as well as their religious labours.

This will be a busy month with the publishing trade of France—not that literature has suddenly regained its wonted activity—but because it is "almanack month." In no country in the world are so many almanacks published; and in none is such an immense number sold as in France. Everybody there, in fact, has his almanack—and it is the only thing in the shape of a book which the peasants—the French peasantry are about 30,000,000 in number)—purchase from year's end to year's end. It is to afford time to these little works to find their way to every nook and corner of the land before the beginning of the new year, that the publication of them takes place so early as September. Every trade and occupation; every science and profession; every class or section of society; every department, every town, and almost every canton, has its special almanack. The catalogue of the forthcoming year's almanacks of one single firm in Paris is now before us—it comprises upwards of fifty different works; and such is their infinite variety, that there is one for literary men in which Jules Janin writes, another for laughter-loving folks by the writers of the *Charivari*, another for young ladies, another for children, another for troopers, another for chemists, another for lunatics, another for good catholics, and another for cooks:—there is a comic one, a prophetic one, a picturesque one, an astrological one, a magical

one, a gambling one, and an imperial one:—there is the Universal and the Veritable, the Double Liegeois and the Triple Liegeois, the Village and the Town,—Nostradamus and Matthieu Laensberg! From the production of this one house, judge of that of all France. But it is nothing compared to what it used to be in King Louis Philippe's time, and in the time of the Republic. Then every political party or faction took advantage of the liberty which prevailed to promulgate or defend its peculiar doctrines, and assail those of its adversaries by means of almanacks; and then every faction and party spared neither labour nor money to circulate them far and wide, in the hope of gaining converts. Blessed days were those for publishers, printers, stationers, and cheesemongers, but weary ones indeed for almanack readers.

A learned archeologist of Tours found some time ago a deed of Charles the Simple, King of France, dated 919, in which mention was made of the existence of a Roman circus in the vicinity of the spot at present occupied by the Cathedral. There was no tradition of any such place; but on examining the ground, which is built on, it was not difficult to trace the form of one. Excavations were made, and they have led to the discovery of a complete circus, in a fair state of preservation. From the measurement that has been made, it appears that the transverse axis of the amphitheatre is 135 metres (the metre is a shade more than a yard), the conjugate axis, 120 metres, the transverse axis of the arena 68, and the conjugate axis 30; whilst the lobbies are 44 metres wide, and the seats contain 13,500 cube metres. This circus is one of the largest yet found in France.

The Aztec Lilliputians, after another week's stay in London, are about to commence a tour of exhibition in the provinces. Whatever may be thought of the story of their origin, they are certainly most remarkable specimens of humanity, which we advise our readers not to lose the opportunity of seeing and examining.

M. de Sauley, the French Eastern traveller, whose recent publications are at present exciting some attention in this country, has presented the Louvre at Paris with a sarcophagus extracted from the tombs of the old kings of Jerusalem.

We hear from Paris, that a selection from the State Papers of Cardinal Richelieu is about to be published.

Grecian Thebes has been partially destroyed by an earthquake.

M. Halévy's new opera, *Le Nabob*, has been brought out at the Opéra Comique at Paris. The libretto is by Scribe and Saint Georges, but is by no means worthy of such a brace of practised playwrights. The Nabob is an English nobleman, Lord Evandale by name, who is wearied and disgusted by the frivolity, quarrelsome ness, insolence, and immorality of his wife;—and when the piece opens the worthy man is deliberating on putting an end to his woe, by taking a dose of poison, or blowing out his brains. Of all the characters of the French stage, the suicidally-inclined Englishman is most hackneyed: hundreds of thousands of times, at least, has he stalked before the Parisian public in a black coat and white cravat, with his pistols peeping from his pocket, and his big bottle of poison under his arm. To serve up the poor wretch once again, and in a comic opera too, displays consequently great poverty of invention, and is almost an insult to the public understanding. The other characters, all English, are equally commonplace and equally false. The plot of the piece, too, is very poor. The Nabob, advised by a medical friend, tries to get rid of his *ennui* by flying from his palace and wealth at Calcutta to become a simple workman in a Welch manufactory—there, moral gentleman! he falls in love with a young workwoman, and offers her marriage. But just as his wedding is to take place, his wife appears—her carriage having, by the merest accident in the world, broken down close to the manufactory. He offers her all his fortune to leave him, and consent to a divorce, but she magnanimously refuses. He

is in despair, when lo ! his medical friend comes in all the way from Calcutta, tells him that his wife is not his wife at all, inasmuch as she was previously married to him, the doctor,—and, though some years before he had been obliged to abandon her, on account of her misconduct and her fiendlike temper, he proposes, with Castor and Pollux-like devotedness, to sacrifice himself to his friend by taking her back again. And thereupon the curtain falls. Nor is this poor and worn-out subject redeemed by the manner in which it is treated; and then the grossest blunders are committed with respect to English usages. Thus, all the men are made to call each other *mildred*, and all the women are *mildadis*, whilst a postilion, in full professional costume—top-boots, short jacket, and all—waits at table and in the drawing-room. Moreover, the people in Wales are clad in Highland tartan, and the manufacture of tobacco is represented to be the staple industry of the country ! Such is the knowledge which two of the principal dramatists of France have of us and our country in these days of friendly alliance and incessant inter-visiting. All this absurd trash, however, is greatly embellished by the music of Halévy. Nothing could possibly be more charming, fresh, gay, sparkling, and comic, than it is. Nobody supposed that the *maestro*, who has hitherto been distinguished for scholastic learnedness and gravity of style, could be so funny and brilliant. The overture is exquisitely graceful, and amongst the *morceaux* most admired are a dispute between the Nabob and his wife, some philosophical reflections on matrimony by the doctor, a sort of drinking song, a charming air in *si bemol*, and especially, though of a less elevated order, a song in praise of smoking, an imitation of a solo on the violin, a hunting song, the chorus of which admirably imitates the *bow wow* of different sorts of hounds, and, finally, a sentimental scene in which Lady Evangeline's lover makes a declaration of his passion in the tobacco manufacture, but is interrupted every moment by sneezing. Thanks to the music—several portions of which will certainly become widely popular—the opera was completely successful. It was well sung and acted by Mdlles. Favell and Miolan, and by Bussine, Couderc, and Mocke.

Mr. Russell has been entertaining the public during the past week at the Lyceum Theatre. This gentleman, in his anecdotes, reminds us strongly of what Pitt said of Sheridan—that “he draws on his memory for his wit, and on his imagination for his facts;” but his songs are deservedly popular.

We understand that the Orchestral Union, under the direction of Mr. Alfred Mellon, intend giving a series of concerts in the New Hall at Bradford.

The German journals say that an English *entrepreneur* is scouring Germany for the purpose of picking up the best male and female lyric singers, with the view of establishing a German opera in London in the approaching winter season.

The Théâtre Lyrique at Paris has recommenced its season with a new opera, in four acts, called the *Moissonneuse*, by M. Vogel. It contains some pretty things, but in some parts is much too long, and in others lacks originality.

M. Berlioz has returned to Paris, after giving a series of concerts with great success in some of the principal towns of Germany.

Old Drury—we like the well-known and familiar word—has once more raised the curtain to the legitimate drama, and if we may judge from crowded houses and hearty applause, evincing a revival of times long gone by, with a chance of success delightful to the well-wisher of our once national theatre. Mr. Gustavus Brooke has been the great attraction, and made his first appearance as *Othello*. Few actors ever possessed greater powers for portraying the character ; gifted with a noble presence, passion, dignified deportment, and a voice rich, musical, and capable of expressing all the varieties of feeling, he seems admirably fitted for the part ; but we are compelled to admit that he mars a most effective performance by mannerisms which, when we consider his long experience, it is surprising he has not studied to

avoid. As a whole, he is much too loud, his pauses are long and tedious, and he has also acquired the habit of elevating his voice to a deafening climax, and then sinking it to tones so low as scarcely to be audible. Mr. Brooke is an artist who has no occasion to raise applause by such violent impulses. We have no hesitation in declaring that he is capable of yet reaching a higher position ; if by doing so he sacrifices a little of the approbation so indiscriminately bestowed, he will gain immensely in the opinion of all thinking men. Mr. Davenport was warmly greeted on his appearance ; and Mr. G. Bennett must have been equally gratified with his reception. A burlesque followed the tragedy, in which Miss Featherston made her first appearance as *King Pretty*. She possesses a decided talent, acted with considerable spirit, and gave proof of a rich contralto voice. She would assuredly prove a valuable acquisition in Planché’s entertaining burlesques.

It is with most unfeigned pleasure that we announce an act of considerate kindness from her Majesty to Mrs. Warner, a lady whose dramatic talents, untarnished reputation, and estimable qualities, have made her one of the ornaments of her profession. Mrs. Warner is now suffering from a most painful and terrible disease, which will before long prove fatal. The queen, on being made acquainted with Mrs. Warner’s melancholy state, in the most delicate manner, ordered a carriage and attendants to be placed at her disposal, in order, if possible, to alleviate her suffering, and afford her every comfort. It is also gratifying to learn that many of the profession have done all in their power to render her assistance : we may mention Mrs. C. Kean, in particular.

Our letters from Paris mention that a dramatic version of Charles Dickens’s ‘‘Battle of Life’’ has been produced at the Vaudeville Theatre with a good deal of success. Dickens, for some years after he obtained his extraordinary fame, was little known and less appreciated in France ; but within the last three or four years he has become very popular indeed, far more so, in fact, than was to be expected, considering that on the one hand his works are thoroughly English, and that the French are but ill-acquainted with English *mœurs*, and that on the other he deals in none of that highly-spiced immorality and exaggerated passion with which their own novelists have been accustomed to entertain them. Whether, however, all his works will bear transplanting on the French stage, as well as they have done on our own, may be doubted ; sure we are that French actors would make a sorry exhibition of themselves in English characters, as the only notion they have of the Englishman is that he is a *mildord*, a grotesque idiot, and a suicide.

Alexander Dumas has written a new comedy in five acts for the Théâtre Français, and it is to be produced without delay. Its scene and characters are taken from the court of the Grand Monarque in his early years ; and it will probably be called *La Jeunesse de Louis XIV.*, or something of that kind. It is said to be a very clever work—nearly all those of Dumas are—and it is expected to gain great success, as most of his plays do ; but it will probably have to encounter some difficulties on the part of the government, as it contains allusions to the melancholy state of the French exiles in Brussels, with whom Dumas has been living—and as it speaks in favour of liberty, which is a proscribed and hated thing in these days of imperial authority.

Madame Sand has written a new play, and it is to be brought out shortly at the Gymnase. Its present title is *Le Pressoir*. Mery’s *Guzman le Brave*—a drama written to flatter the present Empress in the person of the ancestors of her family—is in preparation at the Odéon.

Mr. Buckstone will recommence his season at the Haymarket Theatre about the middle of October. The interior is to be entirely reconstructed.

Midsummer Night’s Dream will shortly be produced at Sadler’s Wells, for the first time.

Mr. Allcroft re-opens the Strand Theatre on Monday with an entirely new company.

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* EXAMPLE.—At the commencement of the year 1841 a person aged 30, took out a policy for £1000, the annual payment for which is £24 1s. 4d.; in 1848 he had a sum of £18 10s. 8d.; but the additional sum 24 1s. 4d. per annum on the sum assured (which is £22 10s. per annum for each £1000) he had £137 10s. added to the policy, almost as much as the premiums paid.

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Age	Premium to insure £100 at death.				
	First Year.	Second Year.	Third Year.	Fourth Year.	Fifth Year.
20	£ 0 18 2	£ 0 19 2	£ 0 20 1	£ 0 21 3	£ 0 22 8
30	1 0 1 9	1 0 1 5	1 0 6 8	1 1 8 4	1 1 1 0
40	1 3 9 2	1 3 5 2	1 4 6 8	1 5 1 0	1 5 2 0
50	1 1 1 0	1 1 1 3	1 1 1 9	1 1 1 8	1 1 2 3

Specimens of the Bonuses added to Policies to 1851, to which will be added a prospective Bonus of one per cent. per annum on the sum insured and previously declared Bonuses, in the event of death before December, 1858, and in which prospective Bonus all new insurers on the Profit scale will participate.

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